VETERINARY MEDICINE LIBRARY

Ref.

OHIO STATE UNIVERSITY
APR - 4 1958
LIBRARY

THE JOURNAL OF THE BRITISH VETERINARY ASSOCIATION

The Veterinary Record

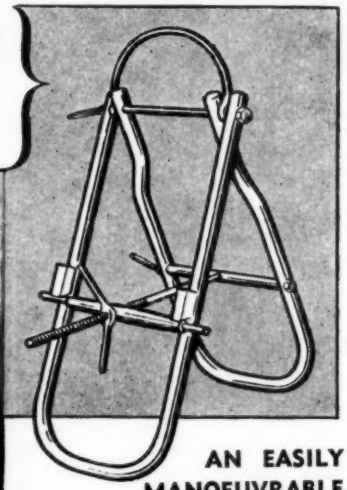
PATRON: HER MAJESTY THE QUEEN

Vol. 70 No. 11 Issue No. 4171 229-250

March 15th 1958

BAGSHAWE'S Cattle Hoist

(Pat. Pending)



The Bagshawe Hoist is a simple, safe device for raising recumbent cattle unable, or too weak, to regain their own feet. It can be used in byre, stall, or stable, or any building where there is a convenient overhead beam for the attachment of a block and tackle.

Simply constructed of tubular steel, it comprises in the main two U-shapes which are designed to fit just below the head of the femur, one on either side of the animal. When drawn together, by means of the adjustable screw the two U-shapes firmly grasp the pelvis and enable the animal to be raised without risk of injury. No animal of ordinary bone strength can be harmed by the use of the Bagshawe Hoist.

Literature and price on application.

AN EASILY MANOEUVRABLE APPARATUS FOR RAISING RECUMBENT CATTLE.

ARNOLD & SONS

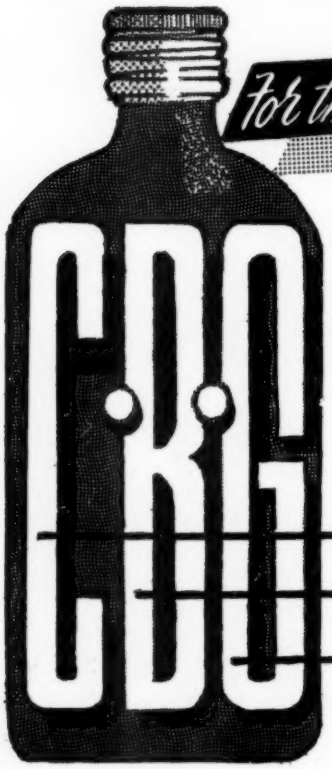
54, WIGMORE STREET, LONDON W.1. Telephone WELbeck 5555

Branches at:

EDINBURGH, BIRMINGHAM, BATH, YORK, READING, DUBLIN & AT GUELPH, CANADA

ARNOLD LONDON

For the successful treatment of MILK FEVER



★

A PRODUCT OF

WILLINGTON MEDICALS LTD SHREWSBURY

★

★

FULL RANGE AVAILABLE with MAGNESIUM PHOSPHORUS and DEXTROSE

★

WILLINGTON MEDICALS LTD

ALPHA LABORATORIES, WHITCHURCH RD., SHREWSBURY, ENGLAND

The
VETERINARY RECORD

Founded by William Hunting, F.R.C.V.S., in 1888

7, MANSFIELD STREET, PORTLAND PLACE, LONDON, W.1. MUSEUM 6541

No. 11 MARCH 15th, 1958 Vol. 70

Registered for Transmission as a Newspaper *Price 2s. post free*

Observations on Nematodirus spp. Infestation in Sheep

BY

C. R. W. SPEDDING, T. H. BROWN, and I. A. N. WILSON

The Grassland Research Institute, Hurley, Berks.

SUMMARY.—Studies of N. filicollis *infestation of lambs and associated pastures are described.*

It is confirmed that the ewe does not represent a significant source of infection for the lamb in the same year. The bulk of the infection was derived from eggs deposited on the pasture by lambs in May, June, and July of the previous year. This was at maximum on the grass between January and May and it is suggested that heavy grazing by resistant stock during this period may assist in the control of this parasite. The essentials of managemental control lie in restricting the area of pasture contaminated in one year and avoiding it for lambs in the next year.

Introduction

NEMATODIRIASIS is recognised as a "lamb-to-lamb" disease (Stamp, Dunn & Watt, 1955; Thomas & Stevens, 1956), each crop of lambs deriving the major part of its infestation from the infection laid down on the pasture by the previous year's lambs. The simple remedy of grazing lambs on pasture that carried no lambs in the previous year, however, is often difficult to apply in practice. More flexible control measures require a wider knowledge of the epidemiology of Nematodirus spp. and the present paper embodies the results obtained during 1955-7 in this field of work.

The Contribution of the Ewe

Ewes normally excrete very few Nematodirus ova in the faeces, and the ewe may safely be ignored as a source of infection for lambs in the same year. This is illustrated in Fig. 1. The field used (pasture A), having received no Nematodirus infection the previous year, was grazed from March, 1956, by ewes and lambs under a variety of managements and stocking rates. The average egg-counts and numbers of larvae per lb. of herbage show that, although the ewes exhibited something of a spring rise in the output of eggs, infestation was slight in the lambs. This was so for all groups, irrespective of management.

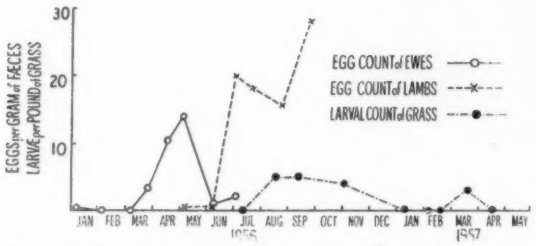

30
20
10
EGGS per GRAM of FAECES
LARVAE per POUND of GRASS
EGG COUNT of EWES
EGG COUNT of LAMBS
LARVAL COUNT of GRASS
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY
1956
1957

FIG. 1.—Nematodirus infestation on a pasture (A) not previously infested with this species.

In a second field, not previously grazed by sheep for several years, this finding was confirmed that the egg output of the ewes did not significantly infect their lambs with Nematodirus. Nevertheless, some of the lambs passed small numbers of eggs and must have acquired their infection from the ewes in the same year. The highest mean egg count for the ewes was less than 3 e.p.g. (for Nematodirus spp.) and the highest individual count for the lambs was 55 e.p.g. (Group mean = 14 e.p.g.).

Egg Output of Lambs

When lambs graze a pasture infected by Nematodirus spp. in the previous year their egg count follows a characteristic curve (see Fig. 2 and Thomas & Stevens, 1956) with a marked peak from mid-May to mid-July. Due to the increasing faecal output

of lambs over this period, it is likely that the total egg-output is greatest a little after the peak. It is certain that the major part of the infection is deposited between mid-May and the end of July, where lambing takes place in March or April.

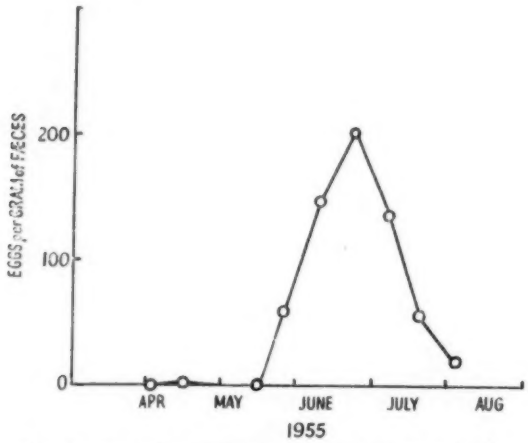


FIG. 2.—Typical nematodirus egg-count curve of lambs.

In 1956 the same flock as that from which Fig. 2 is derived was studied and regular egg-counts and pasture larval estimations were carried out. The estimates of numbers of larvae per lb. of grass are based on a recovery of 50 per cent. from "plucked" samples. This recovery percentage is based on numerous recovery tests and is in line with that found by other workers (Thomas & Stevens, 1956). The egg-counts (Fig. 3) show the negligible numbers passed by the ewes and the marked peak for the lambs over the same period as that for 1955.

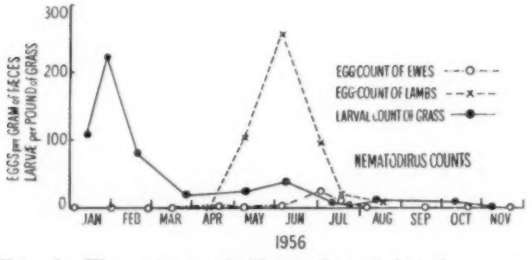


FIG. 3.—The pattern of Nematodirus infestation on a previously infected pasture.

Infection on the Pasture

Fig. 3 also shows that the estimated number of infective larvae per lb. of herbage reached a peak at the end of January, subsequently declined to a low level, and did not rise again in that year.

It is clear that the pasture infection peak preceded that for egg-output and was the cause of the infection laid down by the lambs in the same year. There is little evidence to suggest that any of the eggs passed by the ewes or the lambs contributed to the pasture infection in the same year.

The time at which the maximum number of infective larvae occur on the grass is of considerable importance in relation to the risk of disease in lambs. In 1957, therefore, a more detailed study was made of pastures with known histories of infection by lambs in the preceding year.

Pasture Infestation, 1957

The infection on pasture A was followed during the winter of 1956-7 and the following spring. The numbers of infective larvae are shown in Fig. 1. It will be noted that, although some larvae developed in the autumn of 1956 from eggs passed in that spring or summer, the infection was never high in that year or in the spring of 1957.

Pasture B was grazed rotationally by 14 lambs from June 12th to August 8th, 1956: no other sheep grazed it in that year. The pasture infection in the early part of 1957 (Fig. 4) showed that this grazing

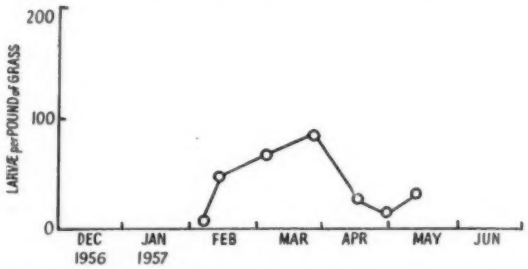


FIG. 4.—Pasture infestation on a pasture (B) grazed by lambs from June to August 1956 only.

period, when the egg-counts of the lambs were not high (mean Nematodirus e.p.g. = 30), produced significant numbers of larvae in the following year, at the same time as the peak for other pastures grazed earlier.

Pasture C. (Expt. H.15) was divided into a number of plots, four of which (plots 1, 3, 8, and 10) were selected for study. Their grazing management during 1956, as far as sheep are concerned, is given in Table I. The sheep used were the flock for which egg counts are shown in Fig. 3. Thus it may be seen that plot 1 received only one grazing when the lambs were passing Nematodirus eggs; plot 3 received two such grazings, plots 8 and 10 received four and three grazings respectively. By taking into account the number of lambs, their average egg count at the time, and the duration of the grazing period, it is possible to calculate a factor which represents, somewhat crudely, the amount of Nematodirus infection each plot received. This is shown as the "relative infection factor" in Table I. During the late winter of 1956-7 and in the spring of 1957 a flock of 40 ewes was grazed on some of the plots, as shown in Figs. 5, 6, and 7. The ewes passed negligible numbers of eggs throughout the period studied (see Fig. 5). On plots 1 and 3 (Fig. 5), considerable numbers of larvae were found in the spring, although the level of pasture infection was never as

TABLE I

PERIODS OF SHEEP GRAZING ON PLOTS 1, 3, 8 AND 10 DURING 1956.
EACH GRAZING WAS WITH 35 EWES AND 67 LAMBS EXCEPT WHERE OTHERWISE INDICATED

Date: / Plot	13.2 to 29.3	29.3 to 10.4	10.4 to 21.4	8.5 to 15.5	15.5 to 28.5	6.6 to 12.6	12.6 to 14.6	14.6 to 27.6	3.7 to 6.7	6.7 to 10.7	10.7 to 18.7	18.7 to 30.7	30.7 to 28.8	Relative infection factor
1													15 lambs from 3.8 to 22.8	3
3		×						×						157
8			×	×		×					22 ewes + 46 lambs	33 ewes + 15 lambs		186
10	36 ewes				×		×		22 ewes + 46 lambs	33 ewes + 46 lambs			33 ewes	196

× indicates period during which sheep grazed the plot.

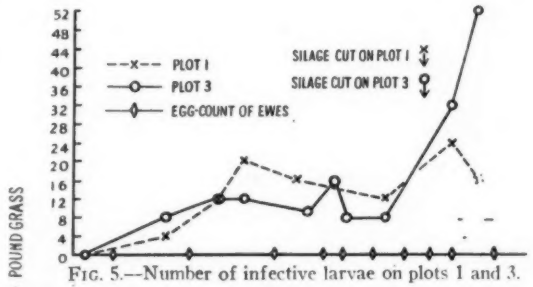


FIG. 5.—Number of infective larvae on plots 1 and 3.

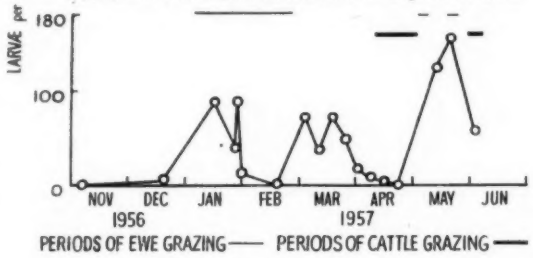


FIG. 6.—Number of infective larvae on plot 8.

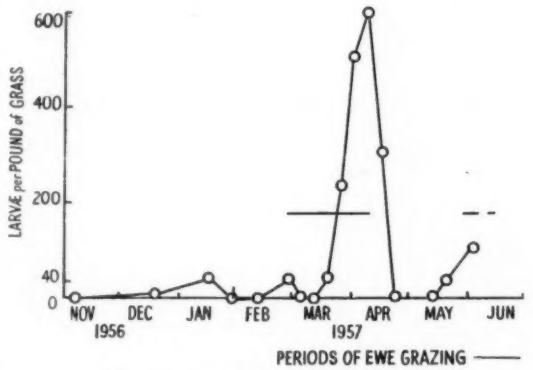


FIG. 7.—Pasture infestation on plot 10.

high as on plots 8 and 10. On the latter (Figs. 6 and 7) the pasture infection began its rise in January (as did that shown in Fig. 3 for 1956) and appeared to reach a peak at the same time as in the previous year. The decline in the numbers of infective larvae immediately after was followed at daily intervals. The sharp decrease in these numbers occurred at a time of heavy rains and proved to be temporary. In late February the numbers rose again, reaching a peak in April on plot 10. This peak represented by far the greatest number found but on plots 1, 3, and 8 the counts reached their peak in late May.

When plot 8 was being grazed (by folding) samples were taken separately on the areas grazed and ungrazed. Although there were differences between them on any one day, the trend was the same on both. During April plot 8 was strip-grazed by cattle and the ungrazed areas had a lower count than the grazed. This indicated a concentration of larvae in the lower parts of the sward and a dilution effect on the number per lb. of herbage when the grass was long. It is clear that grass growth alone would tend to decrease the count per lb. of herbage and, without defoliation, this would be most marked in April and May when grass growth was rapid. Plot 10 had a much higher count in April than any other pasture examined, in spite of the fact that, compared with plot 8, it had a very similar history of infection in 1956 and had a lower count in January, 1957. These high April counts decreased sharply towards the end of that month but rose again in early June. Considering plots 1, 3, 8, and 10, a rise in the count per lb. of herbage appeared to follow defoliation, whether by sheep, cattle, or cutting for silage.

Discussion

Although lambs *can* be infected as a result of eggs passed by ewes in the same year, the ewe was of little importance as a source of infection in the investigation described. Where lambs are grazed on pastures that have carried no lambs in the previous year, or where the previous year's lambs have passed few Nematodirus eggs, the level of infestation is extremely low.

Infected (spring-born) lambs at pasture deposit the majority of the Nematodirus eggs during May, June,

and July. This is likely to be so in different parts of the country but may well vary with the date of lambing.

From the plots studied in 1957 it appears certain that the pastures which received substantial amounts of grazing by lambs in May, June, and July of 1956 were most heavily infected in the following spring. Where it is not possible to avoid entirely the areas which carried lambs the previous year, therefore, it would seem a useful control measure to avoid the land that received the major part of the infection. Similarly it would appear sensible to restrict the area contaminated by lambs during May, June, and July. This should not be too difficult since high stocking rates can usually be carried at this time of year. It is noteworthy that plot 3, in spite of having received a large number of eggs in 1956, did not have a high pasture count until June in 1957. This may have been associated with the fact that all these eggs were deposited during one restricted grazing period in 1956.

At Newcastle (Thomas & Stevens, 1956) the maximum numbers of infective larvae were found on the grass at the beginning of May, reaching low levels again in July: they did not begin to rise from their winter level until April.

In 1956 and 1957 the counts recorded at Hurley rose from their winter level much earlier (January). In 1956 they reached a peak in January; in 1957 this was delayed until the middle of April and, on some plots, late May. The reasons for this delay may have been climatic. There is some evidence that (for *N. filicollis*) the development of infective larvae is assisted by a "cooling" stage, temperatures below 0° C. shortening the incubation period (Poole, 1956). The mild winter of 1956-7 may have had some influence on incubation. The date of the appearance of larvae on the herbage, however, must also be governed by suitability of conditions for migration after the eggs have hatched. Thus the numbers of larvae per lb. of herbage appeared to rise earlier at Hurley than in the north-east. On some plots they also reached their maximum and declined again to low levels rather earlier. There are several possible explanations for this: first, a difference in species of parasite; secondly, a difference in climatic conditions; and, thirdly, differences in management.

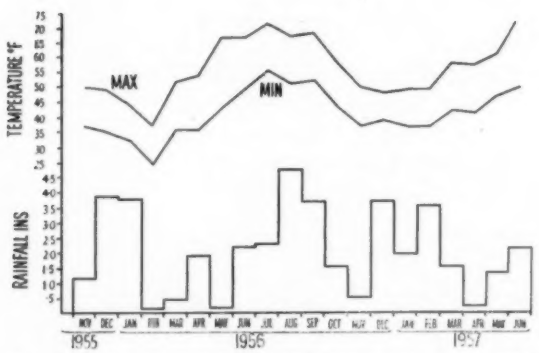


FIG. 8.—Meteorological data at Hurley from November 1955 to June 1957.

At Newcastle the predominant species was *N. battus* (90 per cent.) with few (10 per cent.) *N. filicollis*. At Hurley, in 1957, only *N. filicollis* was encountered. There was, therefore, a difference in dominant species represented, but there is, as yet, no evidence to suggest that the behaviour of these species differs in the respects described. The relevant meteorological data for Hurley are given in Fig. 8. There were indications that management may considerably influence the numbers of larvae per pound of grass. The quantity of grass present on the sward and the grazing management imposed on it appeared to affect the counts. Thus on plots 8 and 10, with similar histories of infection, the pattern of infestation on the grass differed in several ways. Plot 8 was grazed earlier and this reduction in quantity of herbage present may have been responsible for the higher counts in January. Plot 10 was grazed later and the peak infestation on the herbage was rather later. Superimposed on this was a sharp decrease in numbers, in a matter of days, during very heavy rain. The actual curve of increase in the larval population would be better studied on a unit area basis but, in terms of animal health, what matters is the number of infective larvae on each pound of herbage. It seems possible that hard grazing by ewes in January and February, when the counts are rising, would reduce the pasture infection: the much lower peak on plot 8 compared with that on plot 10 was consistent with this. It is reasonable to suppose that heavy grazing at the time when the grass carries most larvae would result in a reduction of the total present. Because of a similar reduction in the total quantity of grass present this might result in a temporary increase in the numbers of larvae per lb. but after a period of regrowth, following full exposure of the remaining larvae to the elements, the final effect would be less infection. Similarly, if there are relatively more larvae nearer the soil surface, creep-feeding the lambs ahead of the ewes might be beneficial in reducing the intake of infection by the lambs whilst allowing the ewes to reduce the infestation on the sward. These possibilities require further investigation.

It may be concluded that, even where it is not possible to confine lambs of one year to pasture that carried no lambs in the previous year, there is evidence to suggest that grazing management may provide adequate means of control.

Acknowledgments.—The authors wish to thank Dr. William Davies, Director, for facilities granted; Messrs. F. E. Alder and R. A. Redford for data derived from their experiments, and Mr. J. E. Betts for technical assistance.

References

POOLE, J. B. (1956). *Canad. J. Comp. Med.* **20.** 169-72.

STAMP, J. T., DUNN, A. M., & WATT, J. A. A. (1955). *Scott. Agric.* Spring. 213-5.

THOMAS, R. J., & STEVENS, A. J. (1956). *Vet. Rec.* **68** (29). 471-5.

Preliminary Report

Beta-ray Therapy in Veterinary Practice

BY

P. J. DALTON

Salisbury

Introduction

A PROGRAMME of work on X-ray therapy has for 4 years been undertaken in this practice and good results have been obtained in the treatment of a variety of conditions. There are, however, certain difficulties encountered in the application of X-rays which make this method of irradiation laborious.

Owing to the physical properties of X-rays it is essential for the operator to be protected adequately from the source of radiation by lead shields. Since, therefore, the operator is at some distance from the apparatus, a method must be found to restrain the animal in position under the source of rays. This usually entails general anaesthesia.

The size and restricted mobility of the machine and its dependence upon an appropriate supply of electricity are other factors which limit the use of this form of therapy, especially in large-animal practice.

When treating the eye and its environs the technique is particularly clumsy. The great penetrating powers of X-rays make it difficult to deliver an effective dose to the surface structures without damaging the lens since this is very susceptible to radiation injury.

In the course of a search of the literature on X-ray therapy it was discovered that, in the United States, beta-rays have been used to irradiate certain lesions encountered in veterinary practice. With the advent of a wide choice of radioactive substances which emit these rays it appears that beta-ray therapy might well become the treatment of choice in certain cases. Consequently, in October, 1956, a beta-ray emitter was obtained.

As this is a new field of treatment in this country, it is thought that a preliminary report might be of interest.

Physics

Beta-rays are streams of rapidly moving electrons emitted from many radioactive elements. Their properties, particularly that of penetration, vary according to the radio-isotope from which they originate. The type of beta-rays which would appear most suitable for general use in veterinary practice are emitted by strontium-90 and radioactive phospho us (P^{32}).

The latter may be obtained in sheet form. Phosphorus is integrally bonded into polythene sheets which are then "cooked" in an atomic pile, with the result that the phosphorus becomes radioactive and emits beta-rays. The sheets can then be cut to suitable sizes and patterns and are secured to the area to be irradiated by means of adhesive tape (Sinclair & Blondal). The disadvantage of this source of beta-rays is that the material loses its power of emitting rays very rapidly.

Strontium-90, however, has a half life of ca. 29 years. It emits rays with an energy of 0.65 MeV.* As emission and decay occurs, the strontium-90 becomes yttrium-90. This, in turn, emits beta-rays of 2.2 MeV, 95 per cent. of which are absorbed by 0.5 cm. of water or tissue. It is these rays which cause the radiobiological changes required. The yttrium-90, as it decays, becomes inactive zirconium-90.

Apparatus

There are a variety of strontium-90 applicators available. The one considered most suitable for general work in this practice is a round plaque measuring 1.5 cm. in diameter. It holds a disc of silver 0.055 mm. thick containing uniformly dispersed strontium-90 carbonate which is protected by a facing layer of silver 0.1 mm. thick and backed by 0.8 mm. silver. The disc contains 40 millicurie of radioactive strontium, and has an active area of 1 sq. cm. This particular applicator produces a dose rate at the level of the face of 11.1 (± 20 per cent.) rads/sec. in tissue.†

A handle is screwed into the back of the plaque and when in use the applicator is held with the plaque near to, and preferably in contact with, the area to be irradiated. Because of the silver backing and the heavy metal of the plaque, the rays are to a large extent directional. The makers consider that, provided the hand is kept always behind the emitting surface, a 4 in. handle is sufficient. There is, however, bound to be some back-scatter of beta-particles and also Bremsstrahlung (an electromagnetic radiation of a nature similar to X-rays, caused by the slowing down of the beta-particles by the heavy metal backing of the plaque). As an added precaution, therefore, lead rubber gloves and protective sheets are used.

The dosage of beta-rays required in the treatment of different conditions varies widely; with this applicator the periods of exposure were between 1 and 10 minutes.

Indications for Beta-ray Therapy

Beta-rays may be used in any condition or lesion which is radio-responsive, provided that the lesion is

* The electron volt (eV) is a unit of energy corresponding to 1.60 × 10–12 ergs. 1 MeV (Million electron volts) = 10^6 eV.

†The term "rad" denotes the quantity of radiation which will result in an energy absorption of 100 ergs by the irradiated material.

not more than 3 mm. thick. Larger lesions may be treated provided that the depth can be reduced to 3 mm. by, for example, surgery or repeated irradiations. The sensitivity of any particular cell to ionising radiations is in direct proportion to its reproductive activity and inversely proportional to its degree of differentiation* and it has been established by Desjardins (1932) that the various tissues of the body have a well defined place in the hierarchy of radiosensitivity.

Cells which are poorly differentiated and which divide repeatedly are most susceptible to injury by radiations, and tissues composed of such cells are therefore more likely to be radiosensitive. In pannus, for example, it is the endothelial cells of the blood vessels which are affected with a resulting blockage of the vessels and eventual regression.

Candlin & Levine (1952) record the treatment with beta-rays of the following conditions in dogs :

Pannus 36 cases	Follicular conjunctivitis 2 cases.
Keratitis pigmentosa 20 cases.	Pterygia 2 cases.
Epithelial tumours 2 cases.	Interstitial keratitis 1 case.

Of the 66 eyes treated, 11 failed to respond and 8 of these were in German shepherd dogs.

Catcott (1954) and Wheat *et al.* (1954) record treating similar conditions, whilst Catcott, Thorp & Johnson (1953) record the use of beta-rays in treating epitheliomata and papilloma occurring in horses and cattle in the eye region.

In the human subject beta-rays have been used in the treatment of epibulbar and limbal melanoma, and to prevent excess vascularisation following corneal grafts (Lederman, 1955). It will be noted that a large proportion of lesions treated with beta-rays are in the environs of the eye.

The lens of the eye is extremely sensitive to radiations, and its threshold is in the region of 800 rontgens. It is difficult when employing the more penetrating X-rays to deliver an adequate dosage to the surface of the lesion without damaging the lens and provoking opacity.

Strontium-90 is a pure beta-ray emitter, and the rays it gives off are virtually all absorbed in the first 5 mm. of tissue ; it will not penetrate sufficiently far therefore to cause lenticular damage, even at the limbus where the cornea-lenticular distance is minimal.

When dealing with easily managed animals it is sometimes possible to hold the emitter within 2 to 3 mm. of the lesion for the irradiation of eye conditions and I have applied the plaque directly to the surface of the cornea of dogs, after the eye has been anaesthetised by the local application of a 1 per cent. amethocaine hydrochloride solution§. For the irradiation of skin lesions the plaque is held in contact with the surface of the lesion.

Intractable patients, however, require the administration of a sedative or general anaesthesia in order to immobilise the part to be irradiated.

* The law of Bergonie and Tribondeau.

§ " Anethaine," Glaxo.

Dosage Rates

The dosage given at each treatment and the interval between treatments varies from case to case, and it is not yet possible to lay down hard and fast rules. In general, however, it is permissible to use much larger doses of beta-rays than X-rays at each irradiation, but it would appear that, as in X-ray therapy, the best results are obtained with smaller doses at frequent intervals.

In general practice, the author has found that irradiations from 2000 to 6000 rad at 3- to 7-day intervals are most easily carried out. Using the smaller dosages, no post-irradiation treatment in the form of local applications of collyria have been required. The American workers, however, favour much larger doses in the region of 20,000 rad at a single application, and this method has much to recommend it.

In a small county city such as Salisbury the number of cases presented in which beta-ray therapy is the treatment of choice is, of course, limited. The following Table shows the results obtained in 19 cases :

TABLE I

Conditions	No. of cases	Average dosage (rad)	Results
In Dogs			
Acute corneal vascularisation	1	3 × 2,660	Excellent
Chronic corneal vascularisation with pigmentation ...	4	3 or 4 × 1,995	Good
Small adenomata of anal area	2	2 × 1,995	Complete regression
Epithelioma of skin ...	3	3 or 4 × 1,330	Complete regression
Hyperplasia of meibomian gland of eyelids	3	8,145 divided into 3 doses	2 regressed completely 1 removed surgically
Nasal ulceration ...	1	3 × 1,995	No response
Senile warts of dogs ...	4	1,995–10,000	Complete regression
In a Cow			
Warts on cow's teats...	1	2 × 2,660	Complete regression

Results

Beneficial results of treatment are manifest in 7 to 10 days. In the case of acute corneal vascularisation, pain and discharge disappears in 4 to 7 days, and within 1 month it was difficult to notice any abnormality in the eyes. In keratitis pigmentosa, however, although the discharge ceases in about a week, it is still possible to see the pigmented areas on the cornea and some very small vessels are still present after several months.

(*Continued at foot of column* 1 *opposite*)

Salt Poisoning in Pigs

BY

D. N. SPRIGGS,

Swindon

SUMMARY.—1. *A case of salt poisoning amongst store pigs is described, causing 7 deaths.*

2. *The toxic dose is estimated to be 4 to 8 oz. for a 50 lb. pig, in the absence of unlimited water.*

3. *The lack of correlation between experimental and practical toxicology is discussed.*

IT is generally recognised by practising veterinary surgeons that large amounts of common salt are harmful to pigs, and numerous examples of salt and brine poisoning may be found in the literature. It has been found experimentally, however, very difficult to cause death or even untoward symptoms by administering comparatively large amounts of pure sodium chloride to the pig. It has been suggested that in many of the cases attributed to salt poisoning, the symptoms may be largely induced, and certainly aggravated by other factors such as bacterial toxins and other impurities and fatty residues in the incriminated brine mixture.

Udall (1936) gives the toxic dose in swine, weight unstated, as 8 to 16 oz. Lander (1934) says it is impossible to state the toxic dose in the pig but it has been quoted at from 4 to 8 oz. He gave 6 consecutive 3 oz. doses to a pig of unstated size, without abnormal results. Tocher (1935) fed 30 3-month-old pigs with varying doses up to 3 oz. per day (amount increased gradually) for 90 days with no untoward effects. Slavin & Worden (1941) dosed 3½-month-old pigs with 10 per cent. common salt in a wet mash, and 6-month-old pigs with 3 oz. and 8 oz. salt in water as single doses with negligible symptoms.

For other references, see annotation by Worden (1941). In the ensuing discussion about salt toxicity this author concludes, "The question remains an open one, although there would seem to be little experimental evidence to indicate that in normal circumstances a healthy pig would voluntarily consume sufficient of the salt to cause serious symptoms or death," and he goes on to ask for authentic cases to be recorded.

In view of the fact that this particular instance appeared to be a true example of uncomplicated sodium chloride poisoning and that it was possible to estimate an approximate average intake per animal, it was thought to be worthy of record.

History

There were 180 pigs in hard store condition on the premises, kept indoors in concrete pens, all between 11 and 13 weeks of age and weighing approximately 40 to 60 lb. Several other pigs had shown signs of scouring for short periods previously but these had been taken out and did not form part of the dosed animals. One pig had died, and *post-mortem* revealed an acute necrotic enteritis.

The 180 pigs were fed on a proprietary sow and weaner meal for a while after weaning and a fortnight previously this had been gradually replaced by sharps fed as a sloppy mash, in which was incorporated kitchen swill and fish waste from several local fish shops (largely fresh fish). The pigs were thriving quite well on this diet.

On the advice of a feeding-stuffs traveller who recommended salt as a good tonic for pigs, a hundredweight bag of pure vacuum-dried salt was purchased. This appeared macroscopically just like ordinary table salt. A veterinary manual on the owner's bookshelf advised rubbing the troughs with salt to increase the pigs' appetite. Closer perusal of the book revealed its date of publication as 1880 !

The owner decided to try the salt out on two batches of pigs consisting of 12 stores (Group A) and 15 stores (Group B) respectively. On the afternoon of September 25th, 1957, each group received a small bowlful (4 lb.) in the mash. They did not take to it very readily but the food was left in the trough and was cleared right up by the following evening. Thus Group A, which consisted of somewhat smaller pigs, received an average of 5⅓ oz. salt per head and Group B, rather stronger animals, an average of 4¼ oz. per head.

On the following two mornings (September 26th and 27th) 3 large bowlfuls of salt, comprising some 18 lb., were incorporated into the mash and swill mixture for the whole 180 head, thus giving a mean of 1½ oz. per animal. This mixture was readily eaten on both occasions. Doubtless the quick

---

Beta-ray Therapy in Veterinary Practice.—*Concluded.*

It is always difficult to determine the exact state of visual acuity in the dog, but the owners consider that the dogs which have been treated for corneal pigmentation do see better after treatment. In the case of acute corneal vascularisation the dog was completely "blind" when presented due to the intense pain on opening its eyelids. Within 5 days it was able to keep its eyes open, and to get about without difficulty.

It is appreciated that these results must be viewed with caution as insufficient time has elapsed to allow for recurrence of the conditions treated. However, as the results obtained are similar to those of other workers, and also to those obtained in the practice for some years with X-ray therapy, there is reason to suppose that the beneficial results are permanent, and this report is submitted in the hope that it may be of assistance to other workers in this field.

Acknowledgments.—I am extremely grateful to Dr. W. P. Grove and Mr. B. N. Clack of the Radiochemical Centre, Amersham, for their help and kindness which has made this work possible.

References

CANDLIN, F. T., & LEVINE, M. H. (1952). *N. Amer. Vet.* **33.** 632.

CATCOTT, E. J., & GREISNER, R. A. (1954). *Amer. J. vet Res.* **15.** 261.

———, THARP, V. L., & JOHNSON, L. E. (1953). *J. Amer. Vet. Med. Ass.* **122.** 172.

DESJARDINS, A. U. (1932). *Arch. Surg.* **25.** 924.

LEDERMAN, M. (1955). *Brit. J. Rad.* **28.** 173.

SINCLAIR, W. K., & BLONDAL, H. (1952). *Ibid.* **25.** 360.

WHEAT, J. D., BLACK, A. L., HAGE, T. J., & RHODE, E. A. (1954). *J. Amer. Vet. Med. Ass.* **125.** 357.

eaters got more of the salt than the slow ones, and the individual dosage must have varied somewhat. Also, some of the Group A and B animals which were still eating, probably ingested additional salt on the second morning, and it is reasonable to suppose that several must have taken in nearly ½ lb. salt over the 3-day period.

Course of the Disease

September 27th. Two or 3 pigs were off their food on the afternoon, but no alarming symptoms seen.

September 28th. One pig was dead, and 5 more affected with nervous symptoms.

September 29th. Two pigs were dead, and 5 fresh cases had developed.

September 30th. Three more pigs had died, and 1 further pig showed symptoms.

October 1st. One more pig was dead, and 1 more pig was ill.

October 3rd. Two of the affected pigs had recovered, and 4 still showed slight symptoms but were considerably improved.

October 5th. The remaining 4 pigs were normal except for a slight twisting of the head in one animal.

In all, 13 pigs were affected, of which 7 died. Six out of these 7 fatalities were from Group A (representing 50 per cent. of the pigs in this group) which had the heaviest intake of salt. The 7th death was the smallest pig in Group B. Out of the 6 affected pigs which recovered, 4 were out of Group B, which had a fairly heavy intake. The 2 other affected pigs which did not receive the preliminary heavy dosage, developed the symptoms last of all, and soon recovered.

On the evidence of the above, it would appear that the toxic dose of sodium chloride for a 50 lb. pig, given in a wet mash is 4 to 8 oz., with the fatal dose probably in the region of 6 to 8 oz.

Onset of Symptoms

Allowing for the fact that the heavily-salted mash was not cleared up for 24 hours, symptoms commenced 24 to 96 hours afterwards, with the acute nervous syndrome exhibited at 36 hours after administration.

Symptoms

The symptoms included loss of appetite, dullness, aimless wandering, frequently in a slow circular direction, vertigo, epilepsy, dilatation of pupils, blindness, and a progressive general paralysis leading to recumbency, coma, and convulsions. The latter occurred particularly if the animal was handled. One characteristic pose was the pig in a dog-sitting position with mouth wide open gasping for air. Other pigs held themselves motionless for 10 to 20 seconds with heads held firmly against the wall or with snouts stuck down into the feeding trough. Two pigs held the sides of their heads lower than the others.

Thirst was manifest in the early stages and in the milder cases. Diarrhoea was not a prominent symptom, although the faeces tended to become a bit softer in the less severely affected animals. Temperature was normal.

Treatment

No specific treatment was adopted. Any remaining food in the troughs was removed, and free access to water only given for 24 hours, after which sow and weaner meal in a wet mash was re-introduced.

Post-mortem Findings

A gastritis, and a haemorrhagic enteritis of parts of the small intestines, varying from slight to moderate, was observed. In no instance was the gastro-enteritis as severe as is often noted in paratyphoid, nutritional scours or bowel oedema. Excess pericardial fluid was common and in one case had led to a myocarditis with sero-fibrinous effusions.

Discussion

Nineteenth century records contain a number of references to salt poisoning in the pig, but most of them are complicated by possible other factors such as bad feeding, other inorganic salts, bacterial toxins, fatty acids from the brine, and " ptomaines."

The experimental induction of salt poisoning has been singularly lacking in success.

On the evidence of the case histories described above, it is clear that in certain circumstances pigs will eat enough common salt to upset and kill them. The salt is likely to prove more injurious under the following conditions :

(*a*) If fed suddenly in large amounts, as is most likely to occur in accidental poisoning, in contradistinction to an increasing scale of dosage as frequently happens in experimental procedures.

(*b*) If fed in a dry, crumbly or wet mash without free access to water.

(*c*) If fed to younger pigs—stores as opposed to porkers, baconers and hilts.

(*d*) If left in the trough to be eaten up, whether the pig fancies it or not.

One cannot agree with Hare's (1943) opinion that " the liability to salt poisoning in pigs resided in feeding the salted food dry over several days," or that there was much danger in commercial mineral mixtures containing sodium chloride. McCleery (1940) quotes a case in which 14 pigs died suddenly after having been fed swill into which a burst bag of salt had been emptied.

Some time ago (*Vet. Med.*, 1941) the Americans were using a heavy dosage of salt in the treatment of paratyphoid and haemorrhagic dysentery. In the light of this present experience, this would seem to be an unnecessarily hazardous procedure.

References

EDITORIAL. (1941). *Vet. Med.* **36.** No. 10. (Abstract in *Vet. Rec.* (1941). **53.** 749.)

HARE, T. (1943). *Vet. Rec.* **55.** 447.

LANDER, C. D. (1934). Wooldridge's Encyclopaedia (2nd Ed.) 777. Oxford University Press.

MCCLEERY, E. F. (1940). *Vet. Rec.* **52.** 221.

SLAVIN, G. & WORDEN, A. N. (1941). *Ibid.* **53.** 694.

TOCHER, J. F. (1945). *Ibid.* **47.** 477.

UDALL, D. H. (1936). Practice of Vet. Med. (2nd Ed.) 269.

WORDEN, A. N. (1941). *Vet. Rec.* **53.** 695.

———. (1943). *Ibid.* **55.** 447.

A Note on the Isolation of *Vibrio fetus* from Bull Semen by Direct Cultivation

BY

J. H. POWER

Veterinary Research Laboratory, Dublin

THE following preliminary report regarding the isolation of *Vibrio fetus* from bull semen by direct culture may be of interest to workers in this field. It is well known that difficulty in demonstrating this organism in the semen of infected bulls is due largely to the wide variety of bacterial flora recovered from their ejaculates. Florent (1956) successfully employed solid media containing brilliant green in concentrations of 1 in 25,000 and 1 in 40,000 for the control of saprophytes and other bacterial contaminants. Kuzdas and Morse (1956) described a selective semi-solid medium incorporating polymyxin B sulphate 1 unit, bacitracin 25 units, and actidione 0.1 gramme per ml. of medium. They claimed successful isolations from contaminated material but gave no details of isolations from bull semen or preputial washings. Plastridge, Walker, Williams, Stula, and Kiggins (1957) reported isolations on solid, blood-enriched media incubated in an atmosphere of 5 per cent. oxygen, 10 per cent. carbon dioxide, and 85 per cent. nitrogen.

Recently in this laboratory a number of isolations of *V. fetus* have been made using a method incorporating modifications of the above methods. Details of the method used are as follows:—

1. Strict precautions to minimise external contamination of semen during collection were observed.

2. The medium used for cultivation consisted of:—

Bacto-Peptone (Difco)	10 g.
Agar (Davis, New Zealand) ..	15 g.
Lab. Lemco.	5 g.
Sodium chloride	5 g.
Glass distilled water	1,000 ml.

The medium was distributed in 100-ml. volumes in screw-capped bottles and autoclaved at 15-lb. pressure for 20 minutes. It was liquefied prior to use and then cooled to 58° C. Ten ml. of defibrinated ox blood were added, then the following agents were added aseptically using sterile, graduated, 1-ml. glass pipettes:—

Polymyxin B Sulphate*	56.8 units per ml. (0.25 ml. of saline solution containing 25,000 units per ml.).
Brilliant green	1 part in 333,000 (0.15 ml. of 0.22 per cent. solution in sterile distilled water).

* Burroughs and Wellcome "Aerosporin."

The medium was poured into Petri dishes 8.5 cm. diameter and dried at 37° C. for ½ to 1 hour before use.

3. Five plates were used for each sample. One drop of semen from a capillary pipette was placed on plate No. 1 and spread with a glass spreader which was used to inoculate successively plates 2 and 3 without recharging.

One drop from a capillary pipette of a 1-in-15 mixture of semen in thiol broth was placed on plate No. 4, spread, and plate No. 5 inoculated with same spreader.

4. Plates were incubated for 3 to 6 days at 37° C. in glass jars of 3½ litres capacity, the metal lid of the jar having been sealed with plasticine. Before sealing, the atmosphere in the jars was adjusted as follows:—

(a) With the lid of the jar partially displaced a volume of hydrogen approximately equal to twice the volume of the jar was allowed to flow in from a hydrogen-supply apparatus by means of rubber tubing directed into the bottom of the jar.

(b) A volume of carbon dioxide approximately equal to half the volume of the jar was then introduced in the same manner, the jar sealed and incubated. A tube of bromo-thymol-blue indicator was used to check the CO_2 concentration within the jar.

The above method of adjustment gave parallel results to those obtained by partially evacuating a Mc'Intosh and Fildes anaerobic jar and adding approximately 70 to 80 per cent. hydrogen and 10 per cent. carbon dioxide.

5. Plates were examined with a Beck dissecting microscope using a 59-mm. objective and 6× eyepieces under oblique light directed from above the plate. Typical looking colonies were picked off and examined by the phase-contrast microscope. If on examination vibrios were present further colonies were transferred into tubes of thiol broth which were incubated for 3 days in 10 per cent. CO_2 at 37° C. These cultures were examined by the phase-contrast microscope, subcultured into Sorbitol Iron agar media (Difco) for the detection of hydrogen sulphide production, and tested for catalase activity.

The following table gives details of a series of examinations carried out on a 5-year-old Shorthorn bull which had been diagnosed as a carrier of *V. fetus* following test mating with a maiden heifer; the organism having been recovered in pure culture from uterine biopsy samples.

Investigations regarding the optimum concentrations of brilliant green and polymyxin are by no means complete. It may be possible to increase or decrease the proportion of these agents with advantage, *e.g.* isolations *of V. fetus* were recently made from one sample of semen from this bull using the above media without the addition of brilliant green.

(*Continued at foot of column* 1, *page* 240)

Foetal Infection in Johne's Disease *

BY
T. M. DOYLE
Central Veterinary Laboratory, Weybridge

SUMMARY.—Acid-alcohol-fast bacilli, indistinguishable morphologically and culturally from M. johnei *were isolated from the spleen, liver, and foetal membranes of foetuses from cows clinically affected with Johne's disease. Two calves inoculated with cultures of acid-fast bacilli isolated from a foetal spleen and a cotyledon, respectively, developed clinical Johne's disease.*

THE first report on foetal infection in Johne's disease was made by Alexejeff-Goloff (1929) who isolated acid-fast bacilli morphologically indistinguishable from *M. johnei* from the blood, liver, and other tissues of a foetus from a clinically affected cow. The bacilli were present also in the intestinal mucosa and the foetal membranes. Hole (1953) observed acid-fast bacilli in the cotyledons of a clinically affected cow. Lawrence (1955, 1956) cultured the foetuses from 24 cows for *M. johnei*; 19 cows were either clinically affected or came from known infected herds; and 5 were apparently normal cows of unknown history slaughtered at an abattoir. From 4 foetuses cultures of an acid-fast bacillus were obtained from the liver, spleen, kidneys, and small intestines; 3 of the foetuses were from clinically affected cows and the fourth was from a *preclinically* infected cow that had given a positive blood reaction to the complement-fixation test and was found, on *post-mortem* examination, to have intestinal lesions. He isolated acid-fast bacilli also from two non-pregnant uteri from an ovary, and from a testicle. Pearson and McClelland (1955) isolated acid-fast bacilli, morphologically indistinguishable from *M. johnei* from the ileo-caecal lymph node and intestinal mucosa of a foetus and from the uterus of a clinically affected cow. From a second affected cow acid-fast bacilli were isolated from the uterine mucosa.

Present Investigation

The work here recorded was carried out on 24 foetuses and foetal membranes from clinically affected cows. The disease was confirmed in each cow by examination of smears of the intestinal mucosa and the mesenteric lymph glands. Cultures were made from the foetal liver and spleen and from the cotyledons on to phlei-egg medium. Acid-alcohol-fast bacilli, indistinguishable morphologically from *M. johnei*, were obtained from 9 foetuses and from 13 cotyledons; the spleen was positive 8 times and the liver 5 times.

The bacilli grew slowly on phlei-egg medium, failed to grow on plain egg, and caused no lesions in guinea-pigs or rabbits, so were provisionally accepted as *M. johnei*; but, in view of the importance of this finding, it was considered advisable to confirm the identity of at least some of the cultures by the inoculation of calves.

* A preliminary report on this work was made to the O.E.E.C. Seminar on Johne's disease held in March, 1955, at Weybridge.

(*Concluded at foot of next column*)

Foetal Infection in Johne's Disease.—*Concluded.*

Calf 276 was inoculated intravenously with culture isolated from a foetal spleen. Nine months later it exhibited clinical symptoms of Johne's disease and was killed *in extremis*.

Calf 367 was inoculated intravenously with culture isolated from a cotyledon. Eight months later it developed clinical symptoms of Johne's disease. Smears of the intestinal mucosa and mesenteric lymph nodes of these calves contained numerous acid-fast bacilli which cultural examination confirmed to be *M. johnei*.

Acknowledgments.—To Mr. P. Stuart, B.SC., M.R.C.V.S., for the cultural examination of the calves. To Mr. R. Martin, E.O., for technical assistance.

References

ALEXEJEFF-GOLOFF, N. A. (1929). *Zeib fur Infekt. Krank. des Haus.* **36.** 313. Abs. *J. comp. Path.*, 1935. **48.** 81.
HOLE, N. H. (1953). *Off. Int. Epizoot.* **40.** 117.
LAWRENCE, W. E. (1955). *Proc. O.E.E.C. Seminar Johne's disease.* March, 1955.
——. (1956). *Vet. Rec.* **68.** 312.
PEARSON, J. K., & MCCLELLAND, T. G. (1955). *Ibid.* **67.**

Enzootic Ataxia ("Swayback") in Lambs in Northern Ireland

BY
J. F. GRACEY and J. R. TODD
Veterinary Research Laboratory, The Farm, Stormont, Belfast

SUMMARY.—A description is given of an outbreak of enzootic ataxia or "swayback" in lambs in Northern Ireland in which the affected cases were mild ones, histopathological changes being confined to the spinal cord.

"SWAYBACK" has been reported in several different counties in England, Scotland, and Wales from Kent to as far north as Caithness by Lyle Stewart (1932), Innes (1936), Innes and Shearer (1940). Bennetts (1932) has recorded enzootic ataxia in Western Australia and Gaiger (1917) has reported upon a disease in lambs in Peru called "Renguerra" which appears to be similar to it. The condition has not been described hitherto as occurring in Ireland although conditioned copper deficiency has been detected in pastured cattle in Eire (O'Moore, 1952). This note describes an outbreak of enzootic ataxia on a lowland farm in County Londonderry.

History

The flock in which the condition occurred for the first time in the spring of 1957, consisted, at lambing, of 100 Blackface ewes and 10 Crossbred or Greyface (Border Leicester × Blackface) ewes. The flock is only partly self-contained; ewes are kept for 2 to 3 years before being drafted, some of the best ewe lambs being retained and some additional replenishments purchased.

Hand feeding of concentrates was not carried out during the mild winter of 1956-7, although this is the normal practice, the usual feed being crushed oats and flaked maize given during the last 6 weeks of gestation. No anthelmintic treatment for either roundworms or liver fluke was adopted during 1956. During pregnancy the ewes were grazed on 1-, 2-, and 3-year-old leys of Italian and perennial ryegrass, timothy and New Zealand wild white clover, which had been fertilised with ground limestone, basic slag, special potato manure, and superphosphate at normally accepted rates. The pasture on which the ewes had been grazing at tupping time (October), however, had received 3 tons of ground limestone per acre in 1953 and a further 3 tons per acre at reseeding in the spring of 1955. When pregnant about 3 months, the ewes were transferred to pasture which had been reseeded in 1954 and treated with ground limestone at the rate of 3 tons per acre. The soil is a brown to dark-brown medium loam derived from mica schist and soil tests carried out after the use of these fertilisers showed a *p*H ranging from 5.5 to 6.1.

Lambing (to 2 Border-Leicester rams) took place mostly in March, a few lambs being born in the last few days of February. There were 36 singles, 54 doubles, 4 triples, and a lamb mortality rate including stillbirths of 9 per cent. The lamb crop of 128 per cent. is about normal for this area. A larger number of large lambs were born, which, however, were not so active immediately after birth as their smaller colleagues.

Symptoms

In all, 6 ataxic lambs were born consisting of one set of twins (the most serious cases) and 4 single lambs. The mothers of these "swayback" lambs were all Blackface ewes (3 to 4 crop).

The most significant symptom noticed was an inco-ordination of the hind quarters which was most evident when the lamb turned sharply or was hustled, when it collapsed. In the more severe cases a knuckling-over of the hind fetlock joints was present occasionally on slow forward progression, and when the lamb was standing still, these particular joints were seen to be overflexed so that their posterior surfaces touched the ground. Due to this posterior inco-ordination affected lambs, when driven, were liable to strike with their hind quarters objects in their way. In the worst cases the carriage of the head was unnatural; it was held in a more upright position with the chin drawn backwards. It was difficult to stop the onward rush of these swayback cases or make them change direction when galloping. These symptoms, which were apparent shortly after birth, were permanent but did not increase in severity and no further cases developed.

The 4 less severely affected lambs grew normally and were eventually graded.

Chemical Analyses

The results of chemical analyses are set out in Table I. The mothers of the affected lambs showed subnormal blood copper levels when the lambs were 3 months old and it may be presumed that lower levels obtained during pregnancy which is the critical period in the development of swayback in lambs. The subnormal liver copper level in the affected lamb is also consistent with Innes' and Shearer's (1940) findings.

TABLE I

COMPARISON OF COPPER STATUS OF EWES AND ONE AFFECTED LAMB WITH SWAYBACK AND NORMAL VALUES

Whole Blood Copper (*μg. per* 100 *ml.*)		
Mothers of affected lambs	36–74 Av. 61	
Mothers of swayback lambs	37–78 Av. 58	Innes & Shearer (1940)
Normal ewes :		
Northern Ireland	75–134 Av. 96	Todd (1956)
Great Britain	54–281 Av. 127	Innes & Shearer (1940)
Australia	Av. 91	Cunningham (1946)
Liver Copper (*μg. per g. dry basis*)		
Affected lamb (3 months)	34	
Cu-deficient (3 months)	16	Cunningham (1946)
Normal (3 months)	284	Cunningham (1946)

Post-mortem and Histopathological Examination

A *post-mortem* examination carried out on the 2 severely affected cases (one in June and one in October) showed no macroscopic lesions apart from severe bruising of the hind quarters.

Examination of frozen sections in both cases revealed degeneration and loss of myelin in the lateral funiculus next to the dorsal roots of the spinal cord, these changes being present in single fibres scattered over a wide area. No lesions were present in the cortex, mid-brain, pons, and medulla and only slight demyelination occurred in the dorso-lateral region of the medulla cord junction.

Acknowledgments.—We desire to thank our colleague, Mr. David Laird, M.R.C.V.S., of Londonderry, on whose behalf the condition was investigated; Dr. J. T. Stamp, Director, and Dr. I. Zlotnik, Pathologist, of Moredun Institute, who kindly carried out the histopathological examinations.

References

BENNETTS, H. W. (1932). *Austral. Vet. J.* **8.** 137, 183.
CUNNINGHAM, I. J. (1946). *N.Z. J. Sci. Tech.* **27A.** 381
GAIGER, S. H. (1917). *J. Comp. Path.* **30.** 185.
INNES, J. R. M. (1936). *Vet. Rec.* **48.** 1,539.
———, & SHEARER, G. C. (1940). *J. Comp. Path.* **53.** 1.
O'MOORE, L. B. (1952). *Irish Vet. J.* **6.** 320.
STEWART, W. Lyle (1932). *Vet. J.* **88.** 133.
TODD, J. R. (1956). Unpublished data.

CLASSIFIED ADVERTISEMENTS

At Easter, Holy Week and the week following will each be short of a working day. Will readers who wish to insert classified advertisements in either of these two issues please send them in *early*.

Clinical Notes

USE FOR POLYTHENE SHEETING IN SMALL-ANIMAL SURGERY

A. D. A. Isherwood
Worthing

For small-animal surgeons who do not possess an autoclave, polythene sheeting eliminates the disadvantages of wet sterile drapes which result in the wetting and chilling of the patient during surgical interference.

Polythene sheeting, although not boilable, may be sterilised by immersion in benzalkonium chloride solution* and shaken dry immediately before use and, if desired, the usual wet sterile towels may be superimposed. The surgery table may also be completely covered.

The following advantages can be claimed :—

1. Does not wet the patient.
2. Retains body heat during operation.
3. Patient is visible through the drapes.
4. Easily cleaned by washing in a detergent.
5. Cheapness and durability.†

* Roccal, Bayer Products, Ltd.
† Supplied by Transatlantic Plastics, Ltd.

Isolation of *Vibrio fetus*.—*Concluded.*

TABLE SHOWING THE NUMBER OF VIBRIO COLONIES EXAMINED MICROSCOPICALLY AND BIOCHEMICALLY FOLLOWING DIRECT CULTURE FROM THE SEMEN OF AN INFECTED BULL GROWN ON BLOOD AGAR CONTAINING POLYMYXIN AND BRILLIANT GREEN AND INCUBATED IN HYDROGEN, CARBON DIOXIDE AND AIR AT 37° C.

Date of examination	Number of colonies examined microscopically	Number of colonies tested for catalase activity and H_2S production	Number producing catalase	Number producing H_2S
19.11.57	6	2	2	0
26.11.57	8	3	3	0
28.11.57	0	0	0	0
2.12.57	6	4	4	0
*9 12.57	8	6	6	0
16.12.57	6	6	6	0

* Formalised antigen prepared from a subculture of a colony picked off on 9.12.57 was agglutinated to a high titre by separate antisera prepared from 9 different catalase-positive, H_2S-negative strains of *V. fetus* and failed to agglutinate with antisera prepared from 2 different catalase-negative, H_2S-positive strains of *Vibrio bubulus*.

Acknowledgments.—The encouragement of Mr. J. F. Timoney, Director, and the technical assistance of Mr. D. Dempsy, Senior Laboratory Assistant, and Mr. P. Geoghegan, Laboratory Assistant, are gratefully acknowledged.

References

FLORENT, A., & VANDEPLASSCHE, M. (1956). *Proc. 3rd Int. Congress anim. reprod., Cambridge*. Section 2. p. 20.
KUZDAS, C. D., & MORSE, E. V. (1956). *J. Bact.* **71.** 51.
PLASTRIDGE, W. N., WALKER, E. C., WILLIAMS, L. F., STULA, E. F., & KIGGINS, E. M. (1957). *Amer. J. vet. Res.* **18.** 575.

AN UNUSUAL MUTATION OF THE BOVINE FOOT

Richard H. C. Penny
Leighton Buzzard

Subject. A 2½-year-old red and white Shorthorn steer.

History. Soon after birth it was observed that this animal had only one claw on each of its front feet. The hind feet were normal. Two supernumerary digits were present on each foot. Bone structure below the carpus appeared to be single and palpation suggested this to be the case. Unfortunately it was not possible to confirm this by X-ray.

The animal walked and ran well although the right hoof had become overgrown and the horn had cracked. From the photograph it can be seen that the claws were rounded both sides and the left foot shows this particularly well.

TREATMENT OF OEDEMA DISEASE OF PIGS WITH VITAMIN B1

V. C. Ward
Heytesbury, Warminster, Wilts

Subjects. Three 4-month-old Large White store pigs.

History. An outbreak of disease indistinguishable from oedema disease amongst pigs in a piggery of

about 60 animals commenced on February 1st, 1957.

By February 8th three deaths had occurred and *post-mortem* examination had revealed typical lesions of oedema disease. On the morning of February 10th three pigs were found to be unable to rise.

Examination. Temperatures were within normal range, heart sounds on auscultation were very faint and rapid, the skin was pallid and cold to the touch. The eyelids of all 3 pigs were swollen. The animals were lying on their sides, being unable to rise or to take any weight on their legs if placed upon them. Paddling of the feet and twitching of the head were continuous and increased on handling, when a high-pitched and " watery " squeak was emitted.

Treatment

	Pig A	Pig B	Pig C
10.2.57	100 mg. aneurine HCl subcutaneously	100 mg. aneurine HCl subcutaneously	100 mg. aneurine HCl subcutaneously
11.2.57	On feet and feeding	On brisket, fed a little	On brisket but was destroyed because of bad sores on legs.
	100 mg. aneurine HCl subcutaneously	100 mg. aneurine HCl subcutaneously	
12.2.57	Slight inco-ordination otherwise normal	On feet for short intervals, very unsteady	
14.2.57	Normal	Could stand and walk but appetite still poor	
8.3.57		As 14.2.57. 100 mg. aneurine HCl subcutaneously	
12.3.57		Food intake increased and pig had gained weight	
27.5.57	Reached bacon weight in normal time. Graded triple A	Rapidly approaching bacon weight. Appearance quite normal	

Discussion. The results of treating the 3 pigs, suffering from clinical oedema disease, with vitamin B1 as set out in this report were far superior to the results of any other line of treatment that I have employed so far.

In the three months following these cases, I treated with vitamin B1 a further 10 pigs that showed symptoms of oedema disease and the majority recovered within 24 to 36 hours, none died.

SUPPLEMENT TO " THE VETERINARY RECORD "

A supplement to THE VETERINARY RECORD is published this week. Members of the Association should receive their copies together with the weekly issue of the journal.

Current Literature

BOOK REVIEWS

Laboratory Administration. E. S. HISCOCKS. Macmillan & Co. Ltd., London, 1956. Pp. xvi + 392. 36s.

The text of this book follows a delightful course of sweet logic between the two extremes of carefree disdain towards cost and regulations on the one hand, and over-regimentation on the other. It cannot fail but be acceptable to both viewpoints.

Those critics who maintain that scientific research cannot be directed presumably refer to the essential requirement for independence if human curiosity is to be allowed to direct an individual's energies towards scientific satisfaction. The administration and management of scientific laboratories, however, and the provision of facilities for the research workers there engaged is a different matter altogether and greatly benefits from organisation. Some of the large industrial organisations even make a point of employing among their research staffs a certain small number of the impracticable inventive type so well known from our school days, the gadgeteers and " chemical messers," full of unorganised ideas but lacking in the kind of worldliness that produces practical results. These people are encouraged to continue their scientific playtime activities, but if any useful idea is seen to have germinated it is immediately placed in the hands of organisable individuals in organised departments where it may be brought to fruition.

There is a " new look " about the research workers of the present day ; it might even be said that the majority are rapidly taking on an organisable character. At the present time we hear a lot about the importance of science in industry and of development in that field being the principal means of maintaining our existence as a political entity in the world. It is surprising, therefore, to learn that practically nothing has been published in this country about the internal organisation and management of scientific work.

It was Einstein who said " One can organise to apply a discovery already made but not make one. Only a free individual can make a discovery." The writer of this book fully appreciates the delicate nature of his subject, where useful advice seems to confound with unwanted interference ; he believes, however, that " 95 per cent. perspiration and 5 per cent. inspiration " applies to much of our research to-day, and where groups become large the proper organisation of the 95 per cent. becomes an indispensable aspect of efficient work. It might, however, be conceded to the young bench worker, that the best research work, in the form of the newest ideas, comes out of small groups where, perhaps, Mr. Hiscocks would agree, the proportion of inspiration may exceed the 5 per cent. There can be no doubt that deep in human nature, harking back to caves and clannish habitations, there is a natural urge to strive for the clan, and a natural stimulus to inventiveness and to leadership, such as does not appear where individuality feels itself to be lost in a large mass of workers directed from some distant centre. Organisation among such

small groups is a natural phenomenon and needs no set instruction.

Mr. Hiscock's book therefore is intended to apply to the larger groups of some 200 and over. In 15 chapters it deals with every aspect of laboratory administration in its management sense, with function of staff, recruitment, training, transfers and promotion, welfare, finance, programmes, general services, buildings, etc., but not with policy, research objective, literature or with design and execution of experiments.

There are 22 appendices giving interesting details of salary scales, report forms, safety precautions, forms for staff assessment, etc., in a variety of institutions ; and finally a brief bibliography of 86 publications among which it is interesting to note only 10 dating back before 1950. This book is a pleasure to read and should be, not only on the shelves, but often in the hands of all those who are concerned with the larger groups of research workers.

Wild Encounters. EILEEN A. SOPER. Routledge & Kegan Paul, 1957. 25s.

In a multitude of books connected with nature observation this volume stands out as having a very pleasant style. It is excellently illustrated, and altogether it provides reading of charm and character. The author has obviously given much time to her observations, which she is now able to record for us in an exceedingly readable style. To all interested in animals this book must have some appeal, but it is to be hoped that, with the increasing interest taken by veterinary surgeons in practice in diseases of unusual pets, the author will not in future feel bound to rely upon "remote control" advice from an animal welfare society, but will rather feel that she can call upon her local veterinary surgeon to give advice of the nature which she obviously required.

Animals Parasitic in Man. GEOFFREY LAPAGE. Penguin Books. 1957. 5s.

If illustration were needed of the thesis that "a man hath no pre-eminence above a beast," it is among his parasitic infections that it might most readily be found. The relationships between man and his parasites depend, in just the same way as the relations between any other creatures, on the circumstances and conditions in the environment in which they live. In just the same way that the parasitic infections of the domesticated animals are inseparably linked with methods of animal husbandry, so also are the parasitic infections of that most domesticated of all domestic animals—man. The study of the parasitic diseases of man, concerned as it is with the unsuspected effects of his way of life, his employments, and his social institutions, must therefore be singularly fascinating. To appreciate this entrancing subject, however, a certain body of basic knowledge—the grammar of the subject—is necessary, and to provide this information in a readily assimilable form Dr. Lapage has written a small grammar for the use of students and others who are likely to take an intelligent interest in natural history. Assuming that his readers know nothing, yet are capable of knowing all, he relates those details of morphology and life histories which he considers appropriate. For a grammar the book is remarkably clear and readable, but if it represents the basis of a subject filled with human interest there is little hint of it. Thus it appears possible to discuss hookworm without any mention of the social phenomenon of barefootedness or to consider *Taenia saginata* without touching on the question of sewage disposal. It would almost appear that the occurrence of any particular parasite is occasioned by some geographical accident, and that wherever a parasite is resident or chances to be introduced, there it must necessarily represent a hazard. Accordingly, the control of parasitic disease would seem to be a matter entirely separate from other human activities, in token of which perhaps it is tucked away, neatly classified, at the end of the book. Perhaps it is this abstract approach to the question of control as much as inadvertence which led to an enchanting comment on the destruction of assassin bugs in "thatched roofs and adobe walls" where "they can be killed by means of blow-lamps."

A Textbook of Dairy Chemistry. EDGAR R. LING. (3rd edition, revised.) Chapman & Hall, London, 1956. Vol. 1 : Theoretical. Vol. 2 : Practical. Pp. xi + 140. 16s.

This is the third edition of a text-book which was first published nearly 30 years ago, and which has already established a firm reputation. The general form and arrangement of sections in the previous editions have been retained, but the subject matter has been brought up to date by modification of some of the earlier information, and in some cases by the addition of new material. References to original publications are given at appropriate points in the text.

The subject matter of the first volume includes a description of the constituents of milk, their chemical and physical properties and their nutritional importance. The composition of milk and the factors which may modify it are discussed, particularly in relation to the legal requirements for the fat and solids-not-fat contents. The effect of heat on milk ; the interaction between milk and metals ; dairy detergents, and chlorine sterilisation are also considered. The preparation and chemistry of cream, butter, cheese and other milk products is described.

The second volume deals with some common laboratory operations, sampling procedures, and the qualitative and quantitative analysis of milk and milk products. Also included are some miscellaneous determinations necessary for the examination of detergent and chlorinating solutions. The examination of refrigerator brines is also mentioned in the list of contents but no information on this could be found in the text.

The book is primarily intended for students of dairying and agriculture and those engaged in technical branches of the dairy industry. As it is written, however, in a readable manner and can be understood without an advanced knowledge of chemistry, the first volume in particular will be of interest to other readers.

ABSTRACT

Dermatitis Caused by Penicillin in Milk. VICKERS, H. R., BAGRATUNI, L., & ALEXANDER, SUZANNE. (1958). *Lancet*. February 15th, 1958. 351–352.

The incidence of sensitivity to penicillin is estimated as being probably about 5 per cent. for the general population and 12 to 15 per cent. for those engaged in its manufacture or who have multiple allergies. The first cases of contact dermatitis due to penicillin were in people exposed during its manufacture. Many cases were later seen in nurses and in patients who had been treated with penicillin in contact with skin for long periods.

A brief discussion on the use of intramammary injections of penicillin in the treatment of mastitis—especially that due to *Streptococcus agalactiae*—indicates that commercial milk supplies may contain penicillin—a fact that has already given rise to anxiety in the United States. The point is then made that if patients previously sensitised to penicillin by local application drink milk containing penicillin dermatitis may develop and persist indefinitely if its true nature is not recognised. Case reports are given of two patients in whom penicillin in milk seems to have been the cause of dermatitis.

The first, a woman of 55, had a long history of skin trouble starting with eczema in infancy. At the age of 15 a rash developed on her ears after contact with a pig with scaling ears; treatment with penicillin resulted in a severe dermatitis of ears, face and neck. At the age of 49 a rash developed on her hands while she was working in a plant nursery, thereafter she had recurrent attacks of dermatitis affecting particularly the face and hands.

In April, 1957—when aged 55—she had an acute exacerbation and was admitted to hospital with a diagnosis of acute contact dermatitis. Patch tests revealed strongly positive reactions to penicillin, primula and nickel sulphate. It was then revealed that the patient had lived on farms for many years. When she had her own cow—which had not had penicillin—she was well, but when her cow stopped lactating and she had fresh bulked milk, probably containing penicillin, she had a relapse. Analysis of fresh milk from the farm where she lived showed a penicillin content of 4 units per ml.

It was decided to desensitise the patient to penicillin. This was done and after some initial difficulty the daily dose was increased until she tolerated 1,000,000 units. The dermatitis has cleared and she has returned to drinking cow's milk with no ill-effects.

The second case was that of a man of 44 who has a small mixed farm with 14 cows milked by machine. He developed a rash round the genital and pubic region which became generalised and was accompanied by fever. The patient said he had given his cows penicillin for mastitis for two years and that he had started to treat one with procaine penicillin 10 days previously. Treatment with prednisolone was followed by a rapid subsidence of the skin reaction. Patch tests were positive to procaine penicillin.

The discussion on these cases is concerned with the concentrations of penicillin found in milk by various observers. Workers in the United States found in 1955 penicillin concentrations in milk of 0·003 to 0·08 units in 11·6 per cent. of 474 samples. The maximum quantity thus recorded could be stated in terms of about 20 units per glass.

In a survey in 1956 the same workers found penicillin in concentrations of 0·003 to 0·550 units per ml. of milk in 5·9 per cent. of 170 samples. They also found that though penicillin could be detected in milk 6 days after treatment, most of it had been excreted after 3 days. The United States Food and Drug Administration has ruled that milk from any cow treated with penicillin should be discarded for 72 hours, but it seems the order is not universally obeyed and that sometimes penicillin may be added to milk as a preservative.

Penicillin in milk is recognised in America as a cause of urticaria but the writers were unable to trace any records of dermatitis of the type described. Berridge in 1956 found over 0·01 units of penicillin per ml. of bulked milk in 4·9 to 47 per cent. of a large number of samples from 8 districts in England and Wales. In some samples the concentration reached 0·8 units per ml. of milk.

The first patient drank nearly a litre of milk daily. Milk from the farm contained 4 units of penicillin per ml. so she may have ingested 4,000 units of penicillin daily.

As the number of persons sensitive to penicillin increases with the widespread use of the drug it may be important that this country should adopt the American ruling prohibiting the distribution of milk for 72 hours after treatment of mastitis with penicillin.

G. F. B.

In a letter to *The Lancet* of February 22nd Dr. David Erskine describes the case of a Merchant Navy officer, aged 54, who had penicillin dermatitis after a course of penicillin injections 4 years ago. Last summer he tried a Swedish milk diet and developed dermatitis. This improved slowly on prednisone treatment but relapsed. It is suggested that refractory allergic dermatitis may frequently be associated with minimal quantities of penicillin persisting in bulked milk supplies.

In a letter to *The Lancet* of March 1st Dr. L. E. Wear mentions the difficulty encountered by cheese makers when milk contains more than 0·03 units of penicillin per ml. In bulked milk of 1,000 gallons or more penicillin is found about once a week but in a concentration of usually less than 1 unit per ml. On one recent occasion 10 units per ml. were found in 750 gallons of milk. This included 150 gallons from one recently treated herd thus raising the theoretical possibility that such milk if unbulked could contain 50 units of penicillin per ml.

The Victoria Veterinary Benevolent Fund

A meeting of Council of the Victoria Veterinary Benevolent Fund was held at No. 10, Red Lion Square, London, W.C.1, on January 10th, when the following members were present:—

Mr. H. W. Dawes (President) in the Chair, Mr. E. Clark, Major J. J. Dunlop, Mrs. K. G. R. Kelly, Professors J. McCunn, A. Messervy, and W. M. Mitchell, Mr. Arnold Spicer, Miss O. Uvarov, Captain W. Watt, and Professor W. L. Weipers.

Mr. C. W. Francis, secretary, was in attendance.

Minutes

The Minutes of the previous meeting, held on November 7th, 1957, having been published in THE VETERINARY RECORD, were taken as read and signed as correct.

Apologies for Absence

Apologies for absence were received from Messrs. G. Atkinson, E. P. Barrett, Professor T. J. Bosworth, Mr. R. C. U. Fisher, Mrs. D. I. Glover, Dr. R. E. Glover, Messrs. G. N. Gould, L. E. Hughes, Professor R. Lovell, Captain T. M. Mitchell, Messrs. J. N. Ritchie, W. J. B. Robson, Captain A. Whicher, and Major W. H. Wortley.

Correspondence

The following correspondence was submitted:—

(a) Letter from Mr. W. E. Wooldridge of December 10th, 1957, enclosing a cheque for £100 which Professor G. H. Wooldridge, his uncle, had bequeathed to the Fund.

(b) Letter from the secretary, British Veterinary Association, nominating Mr. J. M. Ingram as their representative on the V.V.B.F. Council in the place of the late Professor G. H. Wooldridge.

Investments

The treasurer reported:—

(a) That just before the close of the financial year the sum of £330 10s. 9d. has accumulated in the Donations Account, and that he had arranged for this to be invested in the purchase of £541 14s. 3 per cent. British Transport Stock, 1978/88.

(b) That, as instructed at the last meeting, he had invested the balance of £502 13s. 2d. standing in the Wortley Axe Fund in the purchase of £555 4s. 2d. 2½ per cent. Funding Stock, 1956/61.

It was resolved that the action of the treasurer be approved.

Accountant's Report

The secretary read the following report submitted by the accountant which was approved, a vote of thanks being accorded to the respective donors:—

Since the previous meeting the following legacy and donations have been received:—

	£ s. d.	£ s. d.	£ s. d.
LEGACY			
Estate of Professor G. H. Wooldridge			100 0 0
DONATIONS			
Collecting Boxes			
Anon		5 15 9	
Ayrshire Veterinary Association ...		1 12 0	
Beckett, R. L.		3 0 0	
Brancker, Miss W. M.		1 0 0	
Bushman, G. N.		4 3 0	
Bristol University Veterinary School (per Professor C. W. Ottaway) ...		1 0 0	
Central Veterinary Society	3 3 9		
	6 1 3		
	3 6 6		
		12 11 6	
Chambers, Franklin & Chambers		1 7 0	
Eastern Counties Veterinary Association		11 4 3	
Edwards, J. B.		3 1 6	
Gould, G. N.		2 8 6	
Hopson, C. G.		3 13 0	
Hewer, Spriggs & Wilson		3 0 0	
Lincs. and District Division ...		5 8 6	
Midland Counties Veterinary Association		14 15 6	
Morton, J. T.		1 1 6	
North of England Veterinary Medical Association		3 17 6	
North Wales Division		3 13 6	
Pasfield, J. A.		1 1 0	
Royal Counties Veterinary Association		11 11 0	
Russell, Miss E. E. B.		1 5 0	
Scottish Branch		2 16 9	
Scottish Metropolitan Division ...		2 9 9	
Scottish Regional Group, Association of Veterinary Teachers and Research Workers		2 2 0	
Shipley & Son		1 0 0	
South-east Midlands Division ...		7 4 3	
Sussex Veterinary Association ...		6 1 0	
West of Scotland Veterinary Medical Association		1 16 0	
Whicher, A		3 0 0	
White, J. B.		2 0 0	
Wortley, W. H.		17 9	
Yorkshire Veterinary Medical Association		9 0 0	
Bruford, J. W.		1 0 0	
			135 17 6
In Memory of Professor G. H. Wooldridge			
A further 23 contributions have been received. (Total received is now £119 16s.)			46 13 0
Other Donations			
Anon		5 5 0	
East Midlands Division		25 8 6	
Hall, Archer		3 3 0	
Hardwick, A. G.		10 6	
Hunting, Mrs. M. K. (in remembrance of C. S. Hunting) ...		10 10 0	
Kidd, A. A.		3 3 0	
Richmond Dog Show		7 7 0	
Society of Women Veterinary Surgeons		3 3 0	
Steele-Bodger, M. R.		1 10 0	
Whicher, A.		10 6	
			60 10 6
			£343 1 0

Christmas Gifts

The secretary reported:—

(i) That the appeal in THE VETERINARY RECORD early in December resulted in £89 17s. being received.

(ii) That the Executive Committee, with the kind assistance of Mrs. D. I. Glover, treasurer of the Ladies' Guild, had agreed on the following gifts which were despatched to 40 beneficiaries of the Fund on December 14th last:—

	£	s.	d.
11 at £10	110	0	0
16 at £8	128	0	0
5 at £7	35	0	0
2 at £6	12	0	0
5 at £5	25	0	0
1 at £4	4	0	0
40	£314	0	0

In addition, a widow with three boys, nominated by the Executive Committee, also received a hamper of groceries from a lady member of the profession. Letters expressing appreciation and thanks from these beneficiaries were submitted to the meeting.

It was resolved that the action of the Executive Committee in sending out special gifts in December last to 40 beneficiaries of the Fund totalling £314, as detailed in the list placed before the meeting be, and the same is hereby, approved.

Cases

No. 246. Widow, aged 76. One daughter, aged 40, invalid. A report on this case from a member resident in the locality having been considered, *it was resolved* that the grant be increased by 10s. per week as from January 1st, 1958, and that the recent delivery of coal to this recipient be defrayed by the Fund.

Nos. 290 and 301. *It was resolved*

(a) No. 290. Widow, aged 59. Daughter, aged 21, and son, aged 18, at college. That the grant of £3 per week in this case be discontinued as from the end of May, 1958.

(b) No. 301. Widow, aged 56. Son, aged 23, and daughter, aged 20, physiotherapy student. That the grant of £2 per week be discontinued after the February, 1958, payment.

(c) *Memorandum and Articles of Association of the Fund.*

That a copy of Memorandum and Articles of Association be sent to all members of Council; that the secretary be instructed to write to Mr. R. V. Thatcher for his opinion as to whether it is *ultra vires* the powers of the Council to make grants to necessitous cases for educational purposes, and that his reply be submitted to the next meeting.

No. 304. M.R.C.V.S., aged 59. Ill health. Application for financial assistance.

At the request of the Council, the President undertook to arrange for a member of the profession to visit this case and to refer his report to the Executive Committee.

No. 317. Aged 62. Son of late member. Executive Committee reported that as this applicant was due to go into hospital for an eye operation and was in need of temporary help it had agreed on a grant of £5 per month for five months. *It was resolved* that the action of the Executive Committee be approved.

No. 322. M.R.C.V.S., aged 68. The secretary reported that as requested at the last meeting he wrote to the hon. treasurer, V.M.A. of Ireland, in regard to the help which the Fund was giving in this case, and submitted his reply of November 21st, 1957. In the circumstances, it was decided that the present grant of 30s. per week be not disturbed.

No. 325. Widow, aged 53. Three sons, ages 19 (articled pupil), 26, and 30 (both married). After this case has been discussed at some length, a member of Council resident in the locality undertook to visit this applicant and report the result of his enquiries, regarding the points raised in the discussion, to the next meeting.

No. 326. M.R.C.V.S. Three children, ages 7 and 4 years, and 8 months. Applicant and two younger children in hospital, all suffering from tuberculosis. *It was resolved* that the offer of a member of Council to visit this applicant in hospital be accepted, and that the Executive Committee be empowered to act on receipt of his report.

No. 327. Widow, aged 34. (Husband died October 15th, 1957.) Seven children between the ages of 9 years and 3 months.

Particulars of this case having been carefully considered, *it was resolved* that a special grant of £10 be sent immediately to the widow, and that she also be paid the sum of £4 per week for three months, ending March 31st, when the case be further considered.

No. 307. M.R.C.V.S., aged 44. One child, aged 11½. The meeting having been informed of this member's recent death, it was agreed that the offer of a member of Council, who was particularly interested in this case, to submit a report in the near future on the widow's circumstances, be warmly accepted.

It was further agreed that the Executive Committee be empowered to take such action as it deemed desirable on the report, if received before the next Council Meeting.

Date of Next Meeting

It was resolved that the date of the next meeting be left in the hands of the Executive Committee.

UFAW EASTER CONGRESS

This congress will be held at Florence Boot Hall, University of Nottingham, from Friday, March 28th, to Sunday, March 30th.

The programme includes excursions (on Saturday, March 29th) to the experimental farm of Messrs. Boots Pure Drug Co. at Thurgarton, and also to the University Farm at Sutton Bonington. Lectures, followed by discussion, will be as follows: "A Briton's View of Laboratory Animals in America," by Mr. G. Porter of the Laboratory Animals' Bureau, London; "Expanding Justice," by Major C. W. Hume, M.C., B.SC., Founder and Secretary-General of UFAW; "Restraint of Laboratory Animals," by Dr. Phyllis G. Croft, M.R.C.V.S., UFAW Research Fellow; "UFAW's Approach to Problems of Animal Welfare," by Dr. F. Jean Vinter, Technical Secretary of UFAW.

The congress fees, which include all excursions, full board, and a single bedroom, are: seniors, £3; reduced fee for students, 35s. Special rates will be arranged for day visitors.

Enquiries and applications, enclosing full fee or a deposit of 10s., should be made to Miss Williams, UFAW, 7a, Lamb's Conduit Passage, London, W.C.1 (Telephone CHAncery 9221).

News and Comment

COUNCIL OF THE R.C.V.S.

The University of London has re-appointed Dr. R. E. Glover, M.A., D.SC., F.R.C.V.S., Principal of the Royal Veterinary College, as one of its two representatives on the Council of the Royal College. Dr. Glover will hold office until the Annual General Meeting of the College in 1962.

MR. B. M. KERRUISH

Mr. G. F. Smith writes:—

The passing of Mr. B. M. Kerruish, M.R.C.V.S., Regional Veterinary Officer to the Milk Marketing Board, has been recorded.

Brian Kerruish, after a period in general practice, joined the artificial insemination movement on January 1st, 1946, his genuine love of cattle and livestock improvement having attracted him to this new field.

Brian was responsible for pioneering the Board's A.I. service in the North of England and only those who knew him well in those days realise the zeal with which he tackled the development of this new technique under extremely difficult conditions. Later he moved south to become responsible for the Board's 5 south-western A.I. centres, and his very considerable practical experience made his judgment much sought after by those within, and outside, the profession.

Brian was a sound judge of character and had the added attribute of always seeing the best in everybody. This made his staff and wide circle of agricultural contacts continuously respect him, and with his pleasant humour, present on all occasions, enjoy his company.

Brian's work was his life. He did, however, enjoy his family circle, his music, and photography. He wrote well, making many contributions to the A.I. industry which will remain as a lasting memory to a great man.

His passing will be mourned by a wide circle of colleagues who looked upon him as a sincere and refreshing friend. All those who knew Brian would wish to express sympathy to the widow and family at this time.

HOLIDAY EXCHANGES

We have now received some further requests for hospitality from the Continent, and among them are the following suggestions:—

France

Anne-Marie Chantal, aged 15, is anxious to come to England for one month in July or August, and to stay with the family of a veterinary surgeon as a paying guest.

Michel Chabasse, aged 15, would like to stay in England for about a month and a half during July and August this year, and to entertain an English boy during the 1959 summer holidays.

Jean-Jacques Bonin, also aged 15, hopes to visit this country on an exchange basis for 15 days in either August or September, and to entertain his host for a similar period in the Loire district of France.

Jean-Luc and Elizabeth Bernigaud, aged 13 and 15 respectively, would like to stay in England for one month, preferably July, and to arrange a return visit to their home in the Nièvre district for the month of August.

Alain Dubreuil, aged 13, wishes to arrange a holiday in England on an exchange basis for 1½ to 2 months this year. If possible, he would prefer to stay either in the country or in a coastal town. He has three younger brothers and a sister, and he lives in a country district in the department of Ain.

Spain

Professor Ovejero of the University of Leon has suggested an exchange visit for his son, aged 17, who is a first year veterinary student. Juan Ovejero would like to stay with the family of a veterinary surgeon for about 3 months and to see something of veterinary practice in this country. He offers similar hospitality to a colleague visiting Spain.

Members of the profession interested in contacting any of the above are asked to write to THE VETERINARY RECORD at their earliest convenience.

IN PARLIAMENT

Mr. Anthony Hurd addressed the House on an adjournment motion on March 5th, the subject being foot-and-mouth disease. He said that all infection came to this country from outside, and in the last two years we had only been completely free from foot-and-mouth infection for 16 weeks. The dislocation caused to sections of the agricultural industry, and the compensation required from tax payers were serious matters. Mr. Hurd was convinced that the slaughter policy was best, and he recalled that many countries "lived for the day" when they would be sufficiently free of the disease to adopt a slaughter policy.

Many primary outbreaks had been attributed to South American meat, but the most definite scientific evidence was needed to pin the blame where it belonged. He had recently studied conditions in Argentina, where the authorities had been most helpful, but the crux of the matter was that farmers in Argentina, Uruguay, and other South American countries did not take foot-and-mouth disease sufficiently seriously. Additionally, the coverage of vaccination schemes was not nearly complete.

He had nothing but praise for the veterinary inspectors at the markets and freezing rooms, but a great strengthening of the local veterinary services was necessary for the countries concerned. Britain should, in his view, take "a downright line with Argentina." We must make it clear that she runs a serious risk of losing her place in the United Kingdom market for beef unless she takes more determined and effective measures to clear up foot-and-mouth disease. Argentina must be reminded

that we are no longer as dependent upon her for imported beef as we used to be.

Mr. John Hare, the Minister, had absolutely no doubt that the slaughter policy was the proper one for this country, but we had the right to expect that South American meat exporters should take the most stringent precautions possible to avoid "the risk of sending this pernicious virus to us." The Minister welcomed the idea of establishing a list of elite herds in Argentina which were regularly vaccinated and examined by veterinary surgeons. He went on to say he believed the Argentine authorities recognised the value to them of the research done at Pirbright. He would welcome any means of improving the exchange of scientific knowledge.

The Chief Veterinary Officer had just returned from a meeting of the Foot-and-Mouth Commission in Lisbon. The Minister very much hoped that international collaboration would be developed still further. The Ministry's veterinary staff were carrying out the work of dealing with foot-and-mouth outbreaks in Britain "with all the efficiency which can be expected."

CARLSBERG-WELLCOME TRAVELLING RESEARCH FELLOWSHIPS

The Directors of the Carlsberg Foundation, in Copenhagen, and the Wellcome Trustees, in London, instituted in 1957 a system of Carlsberg-Wellcome Travelling Research Fellowships, with the object of encouraging friendly co-operation, on an exchange basis, between Danish and British research workers in any branch of the natural sciences which has a bearing upon human and animal medicine. One Fellowship annually is awarded to a candidate from the United Kingdom for a year's work in Denmark and one annually to a Danish candidate for a year's work in the United Kingdom. The stipend may range from £800 to £1,200 per annum (or the equivalent sums in Danish Kroner) for whole-time research. Travelling and some incidental expenses are provided in addition. It is intended that the second appointments shall be made in respect of the academic year beginning in September, 1958.

Enquiries about these Fellowships from candidates in the United Kingdom should be addressed to the Scientific Secretary of the Wellcome Trust, 52, Queen Anne Street, London, W.1, from whom further particulars may be obtained. There is no form of application, but candidates should submit a full *curriculum vitae*, together with details of their research proposals and a supporting letter from a senior scientist who is familiar with their work. Completed applications must be submitted before April 30th.

THE HAMPSHIRE CATTLE BREEDERS' SOCIETY

Earl St. Aldwyn, Parliamentary Secretary to the Ministry of Agriculture, opened with a golden key the new artificial insemination centre of the Hampshire Cattle Breeders' Society Ltd., at Lyndhurst, on March 7th. In so doing he remarked that he was standing on the threshold of the most modern artificial insemination centre in existence.

Speaking earlier at a luncheon, he congratulated the Society on the financial success of their venture and added, "To have repaid the whole of the original loan, and to have amassed sufficient capital to pay for new buildings and equipment, costing £85,000, without a grant from the Government, is, in my view, a magnificent achievement." He added that this achievement seemed to be in the very best traditions of English agriculture. Much of the credit for the very rapid development of A.I. was due to the Hampshire Cattle Breeders' Society for the leadership it had given. "Your Society was formed as recently as 1944 with the declared object of improving the type, quality, and productivity of cattle in Hampshire and the Isle of Wight. Since then the pioneer members have succeeded even beyond their wildest expectations in making the A.I. service an accepted feature of the farming pattern."

Lord St. Aldwyn said that the Society had been wise to choose, as their chairman, Mr. G. N. Gould, of Southampton, the President of the Royal College of Veterinary Surgeons. Not only would he be certain to know what was going on everywhere, but he had the authority and the resources to find out what his colleagues were doing all over the world.

Lord Selborne, the Society's President, recalled that when he was first approached by Mr. Gould he thought the best site for the Centre was at Lyndhurst, owing to the poor standard of cattle in the neighbourhood. All that had now altered as the result of presenting the small farmer with the opportunity to use good bulls. He was proud that the Centre was purely a farmers' effort and particularly that Hampshire had led Britain in A.I.

Mr. Gould said their finance was based on the goodwill of those members of the farming community, and a small number of townsfolk, who loaned between them £14,000 at 3 per cent. interest. They had repaid that sum and financed the new premises, which now belonged to the members of the Society.

"The appearance of our herds has been somewhat changed in the last year or two by the emphasis on beef from dairy herds, the extent of which is indicated by the rising figures of insemination in dairy herds from beef bulls, which stand at more than 25 per cent. of the total in the last year. We have by no means reached the peak of economic milk production; and continued improvement in average production, combined with the increased longevity of our national dairy herd—which is undoubtedly related to veterinary preventive medicine—must release enormous potentials for beef."

MR. BRIAN HAIGH

Mr. Sydney Jennings writes:—

To those who knew Brian Haigh the news of his death, as announced in THE VETERINARY RECORD of March 1st, must have come as a great shock. To those who did not know him his death is of importance for it concerns us all. This gallant young man was one of the many who were prepared to sacrifice

all in the last war, but although he managed to escape with his life it was a life that was never the same, and death has at last caught up with him.

I knew Brian as a happy, rugger-playing schoolboy when he was at King Edward's Grammar School, Birmingham, and when he wanted to be a veterinary surgeon more than anything else in the world. After leaving school he commenced his veterinary training in Glasgow, and after passing his second professional examination, and thereby securing exemption from national service call-up, he then volunteered to serve in the army. He fought in Greece, and when the forces were evacuated to Crete the hospital ship in which he was sailing was bombed and sunk. As Haigh was swimming he was fired on with machine guns and received multiple wounds. He was picked up and taken to Alexandria, but the hospital to which he was taken was bombed the night he arrived there and he was literally blown out of bed.

He remained in the army with the rank of major until the end of hostilities, and then, with his desire for veterinary work still undaunted, he entered Liverpool University which was near to his home. After graduation he developed a practice in Lytham-St.-Annes and worked with great enthusiasm. But his war experiences had left their mark and made life difficult for him and for his devoted and understanding wife. He suffered with a coronary thrombosis last autumn, and remained critically ill until he died on February 17th in his 39th year. We extend to his widow, and to his young son and daughter, our sincere sympathy.

We who knew Brian will remember his happy, lovable nature, his sincerity, and his enthusiasm. May we all remember with gratitude the sacrifice he was willing to make and which ultimately he made.

PIG LEVY SCHEME

A levy of 2d. a score dead-weight on all pigs eligible for subsidy has been approved by the Minister of Agriculture to meet the costs of the Pig Industry Development Authority and the proposal will be laid before Parliament.

The levy is to be shared between the seller, usually a farmer, and the buyer, who may be a curer, manufacturer, butcher, or dealer. It will be collected by the Ministry of Agriculture at the point of subsidy and passed on to the development authority less a nominal administrative charge. The return has been estimated by the authority at about £450,000 a year, representing about one-third of 1 per cent. of pig prices. No disciplinary provisions are contained in the scheme.

The authority were established to take over progeny testing and pig recording and to conduct research, certification, and information services.

THE REGISTER OF VETERINARY SURGEONS

The name of Robert Graham MacDonald, B.V.SC. (Queensland), c/o Commonwealth Savings Bank of Australia, Bush House, Aldwych, London, W.C.2, was entered on the Commonwealth List of the Register of Veterinary Surgeons on March 7th, 1958.

UNIVERSITY NEWS

Edinburgh

The undermentioned candidates have passed the Final Professional Examination (Part 1) in the subject of Veterinary Hygiene for the degree of Bachelor of Veterinary Medicine and Surgery: Bewsher, Colin B., Grigor, John A., and Wright, Iain G. A.

PERSONAL

Dr. A. T. Phillipson will be a principal speaker at the Pfizer Agricultural Research and Development Centre's Conference in Chicago on May 20th.

He will be the first overseas scientist to address the congress since it was first organised 6 years ago.

Births

BARKER.—On February 23rd, 1958, to Eileen (*née* Duncan), wife of A. Malcolm Barker, B.SC., M.R.C.V.S., of Wharton, Leominster, Herefordshire, a daughter, Amanda Jane, sister for Judith.

COLLINSON.—On March 8th, 1958, at Wallasey, Cheshire, to Gwendolen Hester (*née* Ward, M.R.C.V.S.), wife of Richard Jeffreys Hampton Collinson, B.C.L., M.A., a son, Jonathan Jeffreys, brother for Alicia.

GALE.—On March 8th, 1958, to Rosemary, wife of John Gale, B.V.SC., M.R.C.V.S., of High Street, Twyford, Nr. Winchester, a son, Nigel John.

HOLMES.—On March 5th, at Highfield Maternity Home, Barnstaple, to Sheila, wife of John R. Holmes, M.R.C.V.S., a brother for Robert.

JOHNSON.—On March 3rd, 1958, to Mavis Yvonne, wife of David Ewart Johnson, M.R.C.V.S., 373, Hagley Road, Edgbaston, Birmingham, 17, a son, Martin Ewart.

R.C.V.S. OBITUARY

We record with regret the deaths of the following members of the profession:—

HARPER, Thomas, 4, Argyle Terrace, Preston, North Shields, Northumberland. Graduated July 19th, 1901, at the Royal (Dick) Veterinary College, Edinburgh. Died February 17th, 1958, aged 79 years.

KERRUISH, Brian Maltby, of M.M.B. Cattle Breeding Centre, Rivers Corner, Sturminster Newton, Dorset. Graduated December 15th, 1937, at the Liverpool Veterinary School. Died March 4th, 1958, aged 43 years.

OVER, Alfred Bernard, 15, Downing Street, Cambridge. Graduated July 12th, 1929, at the Royal Veterinary College, London. Died February 21st, 1958, aged 53 years.

COMING EVENTS

March

19th (Wed.). Meeting of the Section of Comparative Medicine, Royal Society of Medicine, at the Society's House, 5 p.m.

Meeting of the Warwickshire Veterinary Club at the Regent Hotel, Leamington Spa, 8 p.m.

19th, 20th and 21st (Wed., Thurs. and Fri.). Committee and Council Meetings of the Royal College of Veterinary Surgeons.

20th (Thurs.). Annual General Meeting of the East Midlands Division at the School of Agriculture, Sutton Bonington, 2.15 p.m.

Spring Meeting of the South-east Midlands Veterinary Medical Association at Franklin's Gardens Hotel, Northampton, 7.30 p.m.

General Meeting of the Herts and Beds Veterinary Society at the George Hotel, Luton, 7.30 p.m.

21st (Fri.) Annual General Meeting of the North of England Veterinary Medical Association in the Agricultural Lecture Room, King's College, Newcastle upon Tyne, 2.30 p.m.

23rd (Sun.). First Meeting of the B.S.A.V.A. Western Region No. 7 at the Bristol Zoo, 2.30 p.m.

26th (Wed.). Annual General Meeting of the Scottish Metropolitan Division in the Royal (Dick) School of Veterinary Studies, 2.30 p.m.

27th (Thurs.). Annual General Meeting of the Western Counties Veterinary Society at the Rougemont Hotel, Exeter, 2.15 p.m.

Meeting of the Essex Veterinary Society at the Essex Institute of Agriculture, Writtle, Nr. Chelmsford, Essex, 7.30 p.m.

28th (Fri.). Annual Dinner-Dance of the East Midlands Division at the George Hotel, Nottingham, 7 p.m.

Meeting of the North Wales Division at the Council Chamber, Town Hall, Ruthin, 2 p.m.

April

2nd (Wed.). 20th Ordinary General Meeting of the A.V.T. & R.W.'s at Derby Hall, North Mossley Hill Road, Liverpool, 18, 10.25 a.m.

9th (Wed.). Meeting of the Sussex Veterinary Society at the Old Ship Hotel, Brighton, 2.30 p.m.

12th (Sat.). 12th Annual Dinner of the B.R.X. Club at the Royal Veterinary College, 6 p.m.

25th (Fri.). General Meeting of the Mid-West Veterinary Association at the Berkeley Café, Clifton, Bristol, 2.30 p.m.

BRITISH VETERINARY ASSOCIATION QUARTERLY MEETINGS IN EDINBURGH

Wednesday, April 9th—Royal (Dick) School of Veterinary Studies

10.15 a.m. Small-Animals Committee.
2.15 p.m. Home Appointments Committee.
3.45 p.m. Farm Livestock Committee.

Thursday, April 10th—Royal (Dick) School of Veterinary Studies

9.30 a.m. Finance Sub-committee.
10.00 a.m. Veterinary State Medicine Committee. Committee.
11.30 a.m. Parliamentary and Public Relations Committee.
2.30 p.m. General Purposes and Finance Committee.

Friday, April 11th—Royal (Dick) School of Veterinary Studies

10.15 a.m. Council Meeting.

ADDRESSES OF DISEASE INFECTED PREMISES

The list given below indicates, first the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Anthrax

Devon. Ley Mill Farm, Fairy Cross, Bideford (Mar. 5).
Yorks. Rickman Farm, Warter (Mar. 5).

Foot-and-Mouth Disease

Somerset. Hobbles Farm, Evercreech, Shepton Mallet (Mar. 6).
Surrey. Blanket Mill Farm, Worplesdon, Guildford (Mar. 7).
Sussex. Hancox Farm, Whatlington, Battle (Mar. 6).

Fowl Pest

Ches. Tenement Farm, Astbury, Congleton (Mar. 6).
Lancs. Old Woodsfold Farm, Woodplumpton, Preston (Mar. 4); Fellview, Woodplumpton, Preston (Mar. 7); 75, Little Woodcote, Wallington (Mar. 3).

Swine Fever

Beds. Piggeries, Nankeville's Fields, Ravensden (Mar. 4).
Birmingham. Dickens Heath Farm, Shirley, Solihull (Mar. 5).
Bucks. Church Farm, Emberton, Olney (Mar. 6).
Glouc. Yewtree Farm, Sibland, Thornbury, Bristol (Mar. 7).
Herts. Riddy Park Farm, Holwell, Hitchin (Mar. 6).
Kent. 128, Jackson Road, Bromley (Mar. 7).
Lincs. Prospect Place, Bridge Street, Gainsborough (Mar. 7).
Norfolk. Church Farm, Alderford, Norwich; Freehold Allotments, Cobholm, Gt. Yarmouth (Mar. 3).
Northants. Browns Lodge, Roade (Mar. 4); Southview Farm, Irthlingborough Road, Wellingborough (Mar. 5); Briar Hill Farm, Hardingstone (Mar. 6); Westfield Farm, Wellingborough (Mar. 7).
Salop. Yetchley Farm, Hampton Bank, Welshampton, Ellesmere (Mar. 5).
Suffolk. All Saints' Hall, Creeting St. Mary, Needham Market, Ipswich (Mar. 3).
Worcs. Upper Woodsfield, Powick; Bennetts Farm, Boreley, Ombersley, Droitwich (Mar. 5).
Yorks. Piggeries, Last Field, Jenkin Lane, Horbury, Wakefield (Mar. 7).

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

Scientific Contributions as Letters

Sir,—I should like to support the point of view put forward by Dr. Taylor on the publication of brief research reports in THE VETERINARY RECORD.

Evidence of pressure on the correspondence columns of *Nature* is provided by the fact that the information in one of the letters to which Professor Beveridge referred had previously been submitted to the editors of *Nature* and returned with the observation "that the number of their readers likely to be interested in the communication was somewhat limited and since there was a large number of communications awaiting publication the editors regretted they were unable to find space."

By their very nature brief reports cannot give complete experimental detail, but I think we should

agree that the authors of such reports accept the responsibility to publish a complete account of their findings in due course.

One of the advantages of the early notification of results is that such a procedure enables other workers in the field to follow on with further research much earlier than would be the case if they had to await the release of full details, in these days of increasing delays in publication.

I agree with Professor Beveridge that the correspondence columns of THE VETERINARY RECORD deal with a variety of topics but if you, Sir, adopt one of Dr. Taylor's suggestions for the differentiation of the two types of correspondence, then will not the publication of preliminary communications enhance the standing of THE VETERINARY RECORD and provide further facilities for the spread of knowledge?

Yours faithfully,
E. J. H. FORD.

7, The Close,
Babraham,
Cambridge.
March 4th, 1958.

Famous Veterinarians

Sir,—With reference to Professor McCunn's final note to Professor Francis I quote from Boardman's Veterinary Dictionary, published in 1805:—

> "*Veterinarian*, one who is acquainted with veterinary ſcience in all its parts and relations. As theſe different branches of the art are uſually practiſed by the ſame perſon, this would be a more ſuitable appellation than that of veterinary *ſurgeon*, which has a more limited ſignification."

Yours faithfully,
GORDON R. SCOTT.

Bacteriology Department,
University of Edinburgh.
March 6th, 1958.

A Matter of Expression

Sir,—The following episode struck me as extremely amusing, and cheered the end of a long day.

I was called at about midnight to lamb a ewe which was very ill with putrid lambs. It was arranged that I should meet my client by the roadside near to where the ewe was. When he returned from telephoning he found that she was already dead; and hearing a car approaching and thinking it was I he cantered his pony down the road to tell me the sad news, shouting and waving his arm. He must have presented a disturbing spectacle to the puzzled motorist who stopped his car, put his head out of the window and called out: "Are you all right?" My client shouted: "No—dead!" The motorist let in his clutch and departed at speed.

Yours faithfully,
L. W. FULLER.

Braeside,
Dulverton,
Somerset.
March 5th, 1958.

Periodic Reviews of Agriculture

Sir,—May I once more raise the subject of the content of THE VETERINARY RECORD? I wish to do so not as a criticism, but by way of making a suggestion.

We are all well aware of the rapid advances being made in agriculture, and of the necessity for veterinary surgeons to keep abreast with these new methods and procedures. While preparing for the Animal Husbandry and Hygiene examinations I became somewhat alarmed at the lack of concise information on many modern aspects of this subject. As an example of my predicament, I searched for some information on broiler production and eventually found a wealth of knowledge in a small booklet issued by a feed-stuff firm.

I know many hard-worked veterinary surgeons seldom get time even to read carefully THE VETERINARY RECORD, let alone search volumes of literature. In view of this situation, might I suggest periodic reviews of recent developments in the agricultural industry as a future subject for publication?

Yours faithfully,
J. T. ROBERTS.

Royal Veterinary College,
Royal College Street,
London, N.W.1.
March 10th, 1958.

Prolapse of the Rectum in the Pig

Sir,—I am surprised to read that Mr. Hindson has had poor results following replacement of the prolapsed rectum in the store pig. I can only quote 10 cases. The first 2 were treated by simple amputation. Both died of obstructive stenosis. The other 8 were replaced with the pig held as for castration, care being taken that the replaced rectum was straightened out internally. A retention suture was then inserted circumscribing the anus. Supportive treatment consisted of liquid paraffin in the food. The suture was removed about the 7th day. So far I have not had a failure with this simple and cheap technique.

Yours faithfully,
R. D. STRANG.

47, York Gardens,
Braintree,
Essex.
March 9th, 1958.

ADVERTISER'S ANNOUNCEMENT

BURROUGHS WELLCOME & CO. announce the introduction of "Frantin" for the prevention and treatment of nematodiriasis in lambs. The active ingredient of "Frantin" is Bephenium Embonate, a new anthelmintic discovered in the laboratories of the Wellcome Foundation Ltd. "Frantin" is available in plastic bottles of 250 grammes (50 doses).